TC.

vacances → Transféré à Marc Lacoste

Sylvain Melançon → voir permis vol

514-633-3604

fx # 3538

sylvain.melancon@tc.gc.ca

insp. navigabilité

"Émettre des permis de vol / Certificats de cert"

tél 5 jrs

Pierre Pépin
514 633 3288

Duvieuc
-3590

Gilbert

Helitowcart - **DESIGN CHANGE REQUEST-ORDER (ECR/ECO)**	F20-01	Page 1 of 3
Reviewed & approved by: /		2006 09 09

A- REQUEST

ECR : 7 ECO : 7

Nature of proposed change :	① Transform BP44 into BP4466 By Adding Certif for R66 ② Take Opportunity to: A) Review & Improve Components B) Review & Improve Drawings & P/N
Reason :	① New R66 on market ② A) Desire to Give more possibilities for adjustment to skid B) Desire to create uniformity of Lug cartridges & Numbering
Submitted By :	Nathalie Barbeau
Date :	June 2, 2013

B- IMPACT ANALYSIS

Product Manager	Initiator, so OK! Signature : N. Barbeau /date : June 2, 2013
Operation Manager	OK Signature : N. Barbeau /date : June 2, 2013
Quality System Manager	OK Signature : N. Barbeau /date : June 2, 2013
Regulatory affairs Manager	OK Signature : N. Barbeau /date : June 2, 2013
Supplier A	— Signature : /date :
Supplier B	— Signature : /date :
Other	— Signature : /date :

C- DECISION

Risk analysis	Following Sitatech's analysis it is found that we can use the BP44 on the R66 without difference. There are no additional risks enrolled. Signature : D. Barbeau /date : 2013 11 11

Decision	Go ahead. Signature : D. Barbeau /date : 2013 11 11

D- ACTION PLAN

Action	Resp	Due date :	Verified by :
BP44 DESIGN REFINEMENT:			
• BOLTS upon analysis of our BP it was found that smaller bolts would be best for the R44 & R66. We thus added 14A & 15A bolts to Kits in STOCK. See attached records	NB	2013 12 14	NB
• REAR FILLER BLOCK Decision to modify Rear filler block to make it easier to slide tightly against the skid (slots + slope)			
• TOP OF SLOTTED CLIP SUPPORT We reorganised the combination of fillers, washers & slotted clip support to match shorter bolts & esthetics. We eliminated the slotted clip support from the BP44			

Effective date :	Effective lot no :
2013 11 11	HTC-LNF-131025-01

Note: • We issued a EO to allow installation of BP44 on R66, so that ~~if~~ people who bought the BP44 and took the initiative to install them on their R66 can retrofit their documents. The effective lots are all those issued before the above lot.

E- VERIFICATION

Verified Elements :	By/ date :
• BP44 tested on R66	
• BP44 tested on Space Skid to find perfect new depth V-clip fit & combination of fillers, bolts & washers).	
OK	DP 2013 11 11

F- VALIDATION

Validated Elements :	By/ date :
• All elements have been validated to ensure fit - form & function for new batches & previous batches	
OK	DP 2013 11 11

G- CLOSURE

I confirm that the designated change has been performed successfully :

Signature : D. Dallaire /date : 2013 11 11

Synthesis ECO #7

BP44	**ECO no 7**			
OBJECTIVES OF THIS ECO:	**LIST OF CHANGES:**	**New BP Batch**	**Old batches in stock**	**Old pairs on the terrain being used with R66.**
1 - Authorize Use of BP44 on R66 (no prod change)	All BP44 kits are now approved on R66	**HTC-LNF-131025-01 TO -20** made with new pads (no R44 engraving) and new Rear filler block (slotted holes and new slope), with new U-clips (changed depth to improve reduction of washers and fillers at installation)		Thus allowing owners of BP44 to install their current bp on R66s (some had done so without the STC being obtained)
	Removed R44 engraving on the pad	Pads in this batch are free of the R44 engraving.		Use **ATS-0709-EO-1000 Rev NC** as confirmation
		This new batch has Can STC only (at the moment as we are awaiting the US one)		Informed customers that had asked for it that we can now officially approve the BP44 on their R66 using the EO that we have. Also I forwarded the **new copy of STC**. For each case that I knew of, I recorded the supply of these documents to the customer we had sold to.
2- Refine BP for better fit & esthetics (minor)	Modified Rear Filler block to transfrom holes into slots and to change the slope for better match to skids	Use new Filler block design	**HTC-LNF-120518-01 (paire -02,09, 10) et HTC-LNF-130203-01 (paires -04,07,08,09)** I added an instruction to explain that shorter bolts can fit better and I supplied additional shorter bolts.	
Issue: too many washers and too long bolts	Changed the height of the U clips to use less fillers, slotted clip supports and washers	Use new Uclip depth		
	Eliminated the use of Slotted clip support	Eliminated Slotted Clip support		
	Used shorter bolts	Used shorter bolts		
3- Update dwgs to create format uniformity (minor)				
Issue: We were carrying dwgs with various format and Identifications since our beginning in 2006 and we				

SHORTER BOLTS

HELI TOW CART BY VANAIR

- THIS KIT WAS ADDED TO ALL KITS IN STOCK ON OCT 22, 2013

LIST OF KITS: • HTC-RC-120518-01 (03) + (09) + (10)

October 22, 2013 • HTC-RC-130203-01 (04) + (07) + (08) + (09)

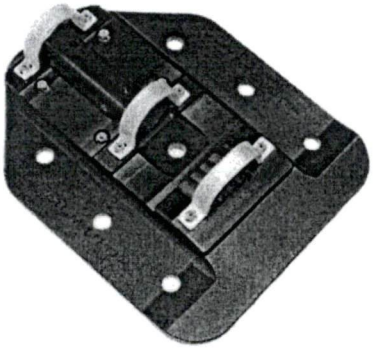
THIS TO IMPROVE FIT & OFFER CHANCE TO USE SHORTER BOLTS.

Object: **Shorter Bolts for tighter fit on Bearpaws for R44/R66**

To whom concerned,

It has been brought to our attention that some cases call for shorter bolts to get the best fit in attaching the U-Clips to the skids. As mentioned in the installation instructions, the use of longer or shorter bolts may be adjusted as required (314-0011-00- Rev. D - p 3/14, Step 3).

We have thus included in this package, extra bolts to allow you to adapt installation to your preference. In most cases shorter bolts may be needed so the extra bolt package includes AN4-15A and AN4-14A:

Original bolts package contains:	Extra bolts package contains:	
Front tip: AN4-**15**A →	Front tip: AN4-**14**A →	
Center: AN4-**16**A →	Center: AN4-**15**A →	
No need to adapt the rear U clip.		

EXTRA BOLTS SUPPLIED:

- 4 x AN4-14A
  API LN 812721/22475
- 4x AN4-15A
  API LN 80196/4477

Should you have any question, do not hesitate to contact us.

Nathalie Barbeau

Nathalie Barbeau
VP Commercial Affairs,
Helitowcart (Vanair inc)

Tel: +1.418.561.4512, Fax: +1.418.836.4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

HELI TOW CART BY VANAIR

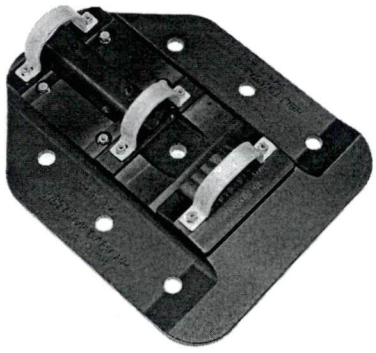
October 22, 2013

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Center: AN4-**16**A →	Center: AN4-**15**A →	
No need to adapt the rear U clip.		

Should you have any question, do not hesitate to contact us.

Nathalie Barbeau

Nathalie Barbeau
VP Commercial Affairs,
Helitowcart (Vanair inc)

Tel: +1.418.561.4512, Fax: +1.418.836.4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

INSTALLATION

BearPaw Installation

Reference Documentation:
[1] Robinson R44 - Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
[2] Annex A – BearPaw Assembly Drawings (112-0001-00-C & 112-0001-00-E)

Step 1: Helicopter Preparation
- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

Step 2: BearPaw Preparation
- With IceBlade Option: Install ice blades (Qty:2) under BearPaw pad as per drawing (112-0001-00) Ref [2];
- With IceBlade Option: Insert washer (Washer P/N 263-0001-17) through threaded part of the ice blade and secure with nut (P/N 262-0001-17);
- Position the BearPaw under skid at the aft intersection with the cross tube as per figure 1 with narrow edge pointing forward.

Step 3: BearPaw Set Up
- Insert washers (P/N 263-0001-17) through all four front bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert bolts(P/N261-0002-17) & (261-0003-17) and washer (P/N 263-0001-17) through BearPaw pad as per drawing (112-0001-00) Ref [2]
- If Streamline model, then apply step 3.1. See step 3.1described below.
- Position the BearPaw pad under the skid
- Insert small filler blocks (P/N314-0012-01) & (P/N314-0014-01) at front of BearPaw& Insert filler blocks (P/N314-0015-01) at center of BearPaw as per drawing (112-0001-00) Ref [2];
- The use of filler blocks mentioned above may be increased, decreased, replaced or complemented by the use of washers (P/N 263-0001-17). Bolts (P/N261-0002-17) & (261-0003-17) may be replaced by longer or shorter AN4 bolts as required.
- Insert both U-shaped clips (P/N 314-0006-15) through bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert slotted clip supports (P/N 314-0007-15) through all four bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb.

Step 3.1: With the Streamline Version of the Bearpaw (P/N 112-0001-00-E)
- Insert washers (P/N 263-0001-17) through bolts (P/N261-0002-17)
- Insert bolts (P/N261-0002-17) and washer (P/N 263-0001-17) through the rear BearPaw pad as per drawing (112-0001-00-E) Ref [2]
- Insert rear filler block (P/N 314-0022-01) at the rear of BearPaw as per drawing (112-0001-00-E) Ref [2];
- Insert two washers (P/N 263-0001-17) per bolts (P/N261-0002-17) (four washers total)
- Insert Low U-shaped clip (P/N 314-0023-15) through bolts: (P/N261-0002-17) as per drawing (112-0001-00-E) Ref [2];
- Insert slotted clip supports (P/N 314-0007-15) through bolts. Position slotted clip supports with rounded edge toward helicopter skid;

Tel: 1-418-561-4512, Fax: 1-418-836-2291, 860 Marie-Victorin, Saint-Nicolas, Levis, Quebec, Canada G7A 3S9.
www.helitowcart.com info@helitowcart.com

Aviatech TECHNICAL SERVICES INC.
2595 rue Saint-Olivier
Trois-Rivières, Québec
G9A 4G1

Engineering Order

Title: Installation of all BearPaw BP44 Configurations on R66 helicopters	
EO Number: ATS-0709-EO-1000 Rev NC	**Date issued:** August 09, 2013
Customer: Helitowcart	**Project number:** A2007-09

A/C INFORMATION

A/C Effectivity: R44, R44 II & R66	**Registration / Serial#:** N/A

SIGNATURE

Prepared by:	Mechanical:	Electrical:	Verified:	Approved:
R. Berthelot (OIQ #5033095)	R. Berthelot (OIQ #5033095)	N/A	J.-F. Lemire (OIQ #141774)	Mirko Zgela (DAR #310)

REFERENCE DOCUMENTS

[1] AAC-STR-BP-R44-1000, "Structural Substantiation – Helitowcart Inc. BearPaw Model BP44", Rev NC dated July 4, 2006.

[2] HTC-TM-BP-R44-1000, "Structural Substantiation – BearPaw Streamline BP44", Rev NC dated October 22, 2009.

[3] ATS-0709-TM-1000, "Structural Substantiation – Addition of R66 Helicopter", Rev NC dated August 09, 2013.

1. Background

Helitowcart has improved its BearPaw design over the years by passing from a pocket configuration with two clips to a longer streamline configuration with two clips and then with three clips. These design changes are shown on Figure 1.

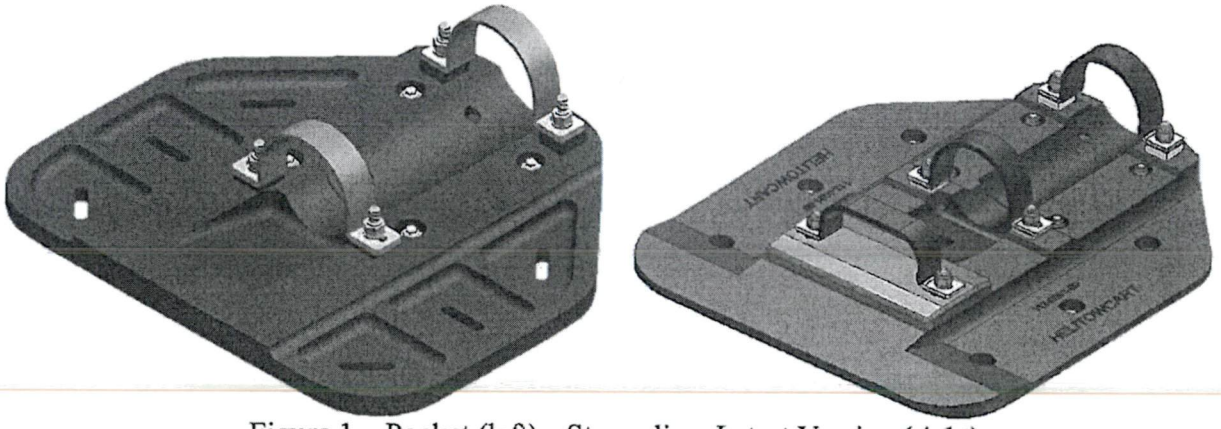


Figure 1 – Pocket (left) – Streamline, Latest Version (right)

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Trois-Rivières, Québec
G9A 4G1

2. Structural Compliance

Structural compliance of BearPaw BP44 installation on the R44 and R44 II helicopters was demonstrated in reference [1] for the pocket configuration and in reference [2] for the streamline configuration with two clips.

Structural compliance of BearPaw BP44 installation on the R66 helicopter was demonstrated in reference [3] for the streamline configuration with two clips (the third clip was neglected). This two clip configuration is the most critical since the streamline configuration with three clips and the pocket configurations are stronger.

Therefore, all BearPaw configurations comply with FAR 27 structural requirements and can therefore be installed on the R66 helicopter.

3. Installation on the R66 Helicopter

Helicopter skids are identical for the R44, R44 II and R66 helicopters. Therefore, installation of BearPaw BP44 on the R66 helicopter is to be performed with the original installation instructions provided with the BearPaw at the time of acquisition (Table 1).

Table 1 – Installation Instructions for all BearPaw Configurations

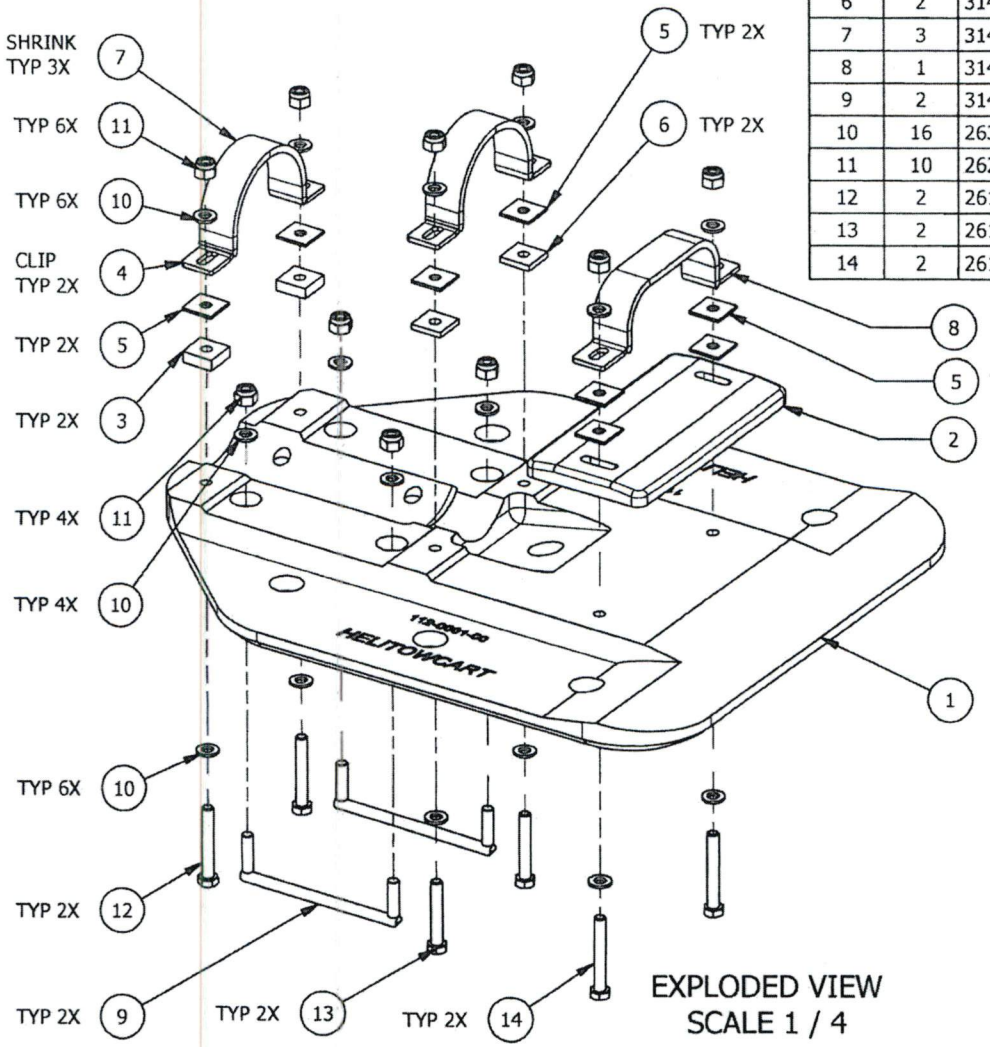
Drawing	Part Number	Description	Installation Instructions
VNR083 Rev R05	112-0001-00-C	Pocket – Two Clips	314-0011-00-B Rev B
112-0001-00-D Rev D	112-0001-00-D	Streamline – Two Clips	314-0011-00-A Rev C
112-0001-00-E Rev E	112-0001-00-E	Streamline – Three Clips	314-0011-00 Rev D
112-0001-00 Rev F	112-0001-00	Streamline – Latest Version	314-0011-00 Rev E

NOTES:

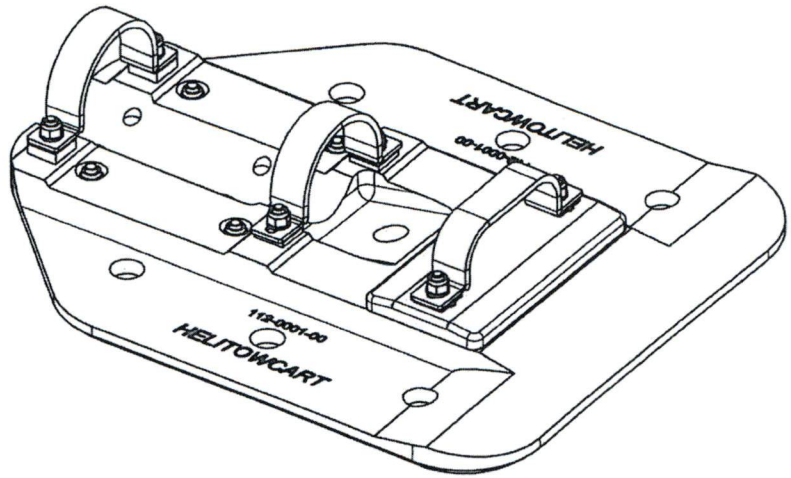
1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	8	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	314-0016-05	BEARPAW - SHRINK (FIT-221)	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	STEEL	---	---
10	16	263-0001-17	WASHER (AN960-416)	STEEL	---	1/4
11	10	262-0001-17	NYLON NUT (AN365-428A)	STEEL	---	1/4
12	2	261-0002-17	HEX BOLT (AN4-15A)	STEEL	QQ-P-416A	1/4-28
13	2	261-0001-17	HEX BOLT (AN4-14A)	STEEL	---	---
14	2	261-0003-17	HEX BOLT (AN4-16A)	STEEL	QQ-P-416A	1/4-28



EXPLODED VIEW
SCALE 1 / 4



ASSEMBLED
SCALE 1 / 4

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE	M. ZGELA	2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

THIS DRAWING IS PROPERTY OF ***HELITOWCART*** AND MAY NOT BE COPIED OR DISTRIBUTED WITHOUT AUTHORIZATION.

DRAFTED BY: G. LAPOINTE — DATE: 2006/04/25
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006/04/25
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ASSEMBLY

DRAWING NUMBER: 112-0001-00 — REV: F

SHEET: 1 OF 1

Transport Canada Transports Canada

Department of Transport

Supplemental Type Certificate

This approval is issued to:

Helitowcart (Vanair Inc.)
877A, Alphonse-Desrochers
St-Nicholas, Lévis, Québec
Canada G7A 5K6

Number: SH06-24
Issue No.: 4
Approval Date: August 17, 2006
Issue Date: October 10, 2013

Responsible Office: Québec
Aircraft/Engine Type or Model: See Continuation Sheet on Page 2 of 2
Canadian Type Certificate or Equivalent: See Continuation Sheet on Page 2 of 2
Description of Type Design Change: Installation of Helitowcart BearPaw

Installation/Operating Data, Required Equipment and Limitations:

For the Robinson Models R44, R44 II and R66 Helicopters:

Installation of Helitowcart Bear Paw BP44 is to be performed in accordance with TC approved Helitowcart Master Document List Report: HTC-MDL-BP-R44-1000, Revision D dated August 28, 2013, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Document: 314-0011-00, BearPaw Model BP44, Installation Instructions – R44/R66, Revision E dated August 09, 2013 or later Transport Canada approved revision.

See Continuation Sheet Page 2 of 2

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

Jean-Pierre Francoeur
For Minister of Transport

Canada

Installation/Operating Data,
Required Equipment and Limitations (Cont'd):

For the Eurocopter (formerly Aerospatiale) AS350 and AS355 Series Helicopters:

Installation of Helitowcart Bear Paw BP350 is to be performed in accordance with TC approved Helitowcart Master Document List Report: HTC-MDL-BP-AS350/355-1000, Revision F dated April 8, 2010, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Document: 314-0020-00-E, BearPaw Model BP350, Installation Instructions – AS350/355, Revision F dated December 21, 2012 or later Transport Canada approved revision.

For the Eurocopter EC 130 Helicopters:

Installation of Helitowcart Bear Paw BP130 is to be performed in accordance with TC approved Helitowcart Master Document List Report: HTC-MDL-BP-EC130-1000, Revision A dated May 13, 2011, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Document: 314-0031-00-A, BearPaw Model BP130, Installation Instructions – EC130, Revision A dated May 04, 2011 or later Transport Canada approved revision.

Fleet Eligibility List		
Make	**Model**	**Type Certificate Data Sheet**
Robinson	R44	H-97
Robinson	R44 II	H-97
Robinson	R66	H-111
Eurocopter	AS 350 B	H-83
Eurocopter	AS 350 B1	H-83
Eurocopter	AS 350 B2	H-83
Eurocopter	AS 350 B3	H-83
Eurocopter	AS 350 BA	H-83
Eurocopter	AS 350 D	H-83
Eurocopter	EC 130 B4	H-83
Eurocopter	AS 355 E	H-87
Eurocopter	AS 355 F	H-87
Eurocopter	AS 355 F1	H-87
Eurocopter	AS 355 F2	H-87
Eurocopter	AS 355 N	H-87

– End –

Transport Canada	**Date:** August 28, 2013
Statement of Conformity With Certification Basis	**Approval #** Q-SH06-24 Issue #4

Model No	**Type of equipment**
R44, R44 II, R66, AS 350 D, AS 350 B, AS 350 B1, AS 350 B2, AS 350 B3, AS 350 BA, EC 130 B4, AS 355 E, AS 355 F, AS 355 F1, AS 355 F2, AS 355 N	BearPaw

Statement of Conformity

As the applicant to the modification approved under the STC Q-SH06-24 Issue #4, I hereby declare that the modifications listed above and defined in the following Master Document Lists:

For the R44 Series and R66:
HTC-MDL-BP-R44-1000, Revision D dated August 28, 2013

For the AS350 and AS355 Series:
HTC-MDL-BP-AS350/355-1000, Revision G dated December 21, 2012

For the EC130 - B4:
HTC-MDL-BP-EC130-1000, Revision A dated May 13, 2011

are conform to the best of my knowledge with its certification basis established by the Minister.

COPIE

Signature: _____
Mirko Zgela (DAR#310)

On behalf of: Helitowcart

Position title: President

Company/Organization: Aviatech Technical Services Inc

Aviatech
SERVICES TECHNIQUES Inc.

Trois-Rivières, 08 novembre, 2013

Projet: A2007-09

Nathalie Barbeau
VP Commercial Affairs
Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Québec, Canada
G7A 5K6

Fourni avec le CD des doc.

Objet: STC SH06-24 Issue #4 - Installation of Helitowcart BearPaw

Madame,

Vous trouverez ci-joint la documentation pour la version 4 du certificat SH06-24 selon votre PO # nb-130702-01. L'envoi des documents nécessaires pour la demande du certificat FAA sera effectué dans les plus bref délai. Nous vous informerons de l'avancement de cette demande au fur et à la mesure que nous recevrons de nouvelle information.

En espérant le tout à votre entière satisfaction,

Sincèrement,

JF Lemire

Jean-François Lemire, ing.
Directeur d'ingénierie

Aviatech Services Techniques Inc.
2595, rue St-Olivier
Trois-Rivières, Québec, G9A 4G1
Tel: (819) 601-8049 Fax: (819) 377-7928
Courriel: info@ats-ast.com
Site internet: www.ats-ast.com

Aviatech
SERVICES TECHNIQUES Inc.

Trois-Rivières, 16 juillet, 2014

Projet: A2007-09

US STC

Nathalie Barbeau
VP Commercial Affairs
Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Québec, Canada
G7A 5K6

Objet: Certificat original - FAA SR02432NY daté du 3 juin 2014

Madame,

Vous trouverez ci-joint le certificat original (FAA SR02432NY) selon votre PO # nb-130702-01.

En espérant le tout à votre entière satisfaction,

Sincèrement,

Jean-François Lemire, ing.
Directeur d'ingénierie

Aviatech Services Techniques Inc.
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Trois-Rivières, Québec, G9A 4G1
Tel: (819) 601-8049 Fax: (819) 377-7928
Courriel: info@ats-ast.com
Site internet: www.ats-ast.com

NEW ENGLAND REGION
NEW YORK AIRCRAFT CERTIFICATION OFFICE
1600 STEWART AVENUE, SUITE 410
WESTBURY, NEW YORK 11590

INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT

This STC is official indications of FAA approval of your installation and may be used to authorize identical installation on other aircraft of the same model, subject to the limitation noted in the STC. It may be transferred, or otherwise made available to another party by means of a licensee arrangement; however, you are requested to advise this office when you transfer or grant licensee rights to the STC in order that we may take the necessary recording or reissuance action.

If you plan to manufacture and sell parts for installation on type certificated aircraft, please review FAR 21.502, which is applicable to parts imported into the U.S.

A copy of the STC and required documents should accompany each kit and installation. Also, your attention is directed to the limitations and conditions specified in the STC.

As recipient of this approval, except as provided in FAR21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in FAR 21.3(c).

The report should be communicated initially by telephone and subsequently in writing to the Manager, New York Aircraft Certification Office, telephone (516) 228-7300, mailing address: 1600 Stewart Avenue, Suite 410, Westbury, New York 11590. This first contact should take place within 24 hours after it has been determined that the failure required to be reported has occurred.

FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.



Gaetano Sciortino
Manager
New York Aircraft Certification Office

United States of America

Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

IMPORT

Number SR02432NY

This certificate issued to Helitowcart (Vanair Inc.)
877A, Alphonse-Desrochers
Saint-Nicholas, Lévis, Québec
Canada G7A 5K6

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of * *of the* * *Regulations.*

Original Product - Type Certificate Number: *

Make: *

Model: *

* See attached FAA Approved Model List (AML) No. SR02432NY for the list of approved aircraft models, applicable airworthiness regulations, and required documents.

Description of Type Design Change:

1. Installation of Helitowcart Bear Paw Models BP350, BP44 or BP130 in accordance with Helitowcart Master Document Lists as specified in AML SR02432NY.
2. Instructions for Continued Airworthiness documents as specified in AML SR02432NY are required with this installation.

Limitations and Conditions:

1. A copy of this certificate and FAA AML No. SR02432NY must be maintained as part of the permanent records of this modified aircraft.
2. The Installer must determine whether this design change is compatible with previously approved modifications.
3. If the holder agrees to permit another person to use this certificate to alter a product, the holder must give the other person written evidence of that permission.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: March 26, 2007

Date reissued:

Date of issuance: July 20, 2007

Date amended: January 14, 2013, June 3, 2014

By direction of the Administrator

(Signature)

Gaetano Sciortino
Manager, New York
Aircraft Certification Office

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

FAA APPROVED MODEL LIST (AML) NO. SR02432NY
HELITOWCART (VANAIR, INC.)
FOR
INSTALLATION OF BEAR PAWS

Original Issue Date: July 20, 2007
Amended Date: June 3, 2014

PART	REGULATION	MAKE	MODEL	TCDS	REQUIRED DOCUMENTATION			AML AMENDMENT DATE
					MASTER DOCUMENT LIST	INSTALLATION INSTRUCTIONS	INSTRUCTIONS for CONTINUED AIRWORTHINESS	
27	Federal Aviation	Airbus Helicopters	AS350B, B1, B2, B3, BA, D, D1	H9EU	Helitowcart Inc. Master Document List, Report no. HTC-MDL-BP-AS350/355-1000 Rev. G, approved on December 21, 2012 or later Transport Canada approved revision.	Helitowcart Inc. Installation Instructions - AS350/355, Bear Paw Model BP350, document no. 314-0020-00-E, Rev. F, approved on December 21, 2012 or later Transport Canada approved revision.	Contained within Installation Instructions, page 8 of document no. 314-0200-00-E, Revision F.	June 3, 2014
27	Federal Aviation	Airbus Helicopters	EC 130B4	H9EU	Helitowcart Inc. Master Document List, Report no. HTC-MDL-BP-EC130-1000 Rev A, approved on May 13, 2011 or later Transport Canada approved revision.	Helitowcart Inc. Installation Instructions – EC130, Bear Paw Model BP130, document no. 314-0031-00-A, Rev. A, approved May 4, 2011 or later Transport Canada approved revision	Contained within Installation Instructions, page 6 of document no. 314-0031-00-A, Revision A.	June 3, 2014
27	Federal Aviation	Airbus Helicopters	AS355E, F, F1, F2, N	H11EU	Helitowcart Inc. Master Document List, Report no. HTC-MDL-BP-AS350/355-1000 Rev. G, approved on December 21, 2012 or later Transport Canada approved revision.	Helitowcart Inc. Installation Instructions - AS350/355, Bear Paw Model BP350, document no. 314-0020-00-E, Rev. F, approved on December 21, 2012 or later Transport Canada approved revision.	Contained within Installation Instructions, page 8 of document no. 314-0200-00-E, Revision F.	June 3, 2014
27	Federal Aviation	Robinson Helicopter Company	R44, R44 II	H11NM	Helitowcart Inc. Master Document List, Report no. HTC-MDL-BP-R44-1000 Rev. D, approved on August 28, 2013 or later Transport Canada approved revision.	Helitowcart Inc. Installation Instructions - R44/R66, Bear Paw Model BP44, document no. 314-0011-00, Rev. E, approved on August 9, 2013 or later Transport Canada approved revision.	Contained within Installation Instructions, page 6 of document no. 314-0011-00, Rev. E.	June 3, 2014

FAA APPROVED MODEL LIST (AML) NO. SR02432NY
HELITOWCART (VANAIR, INC.)
FOR
INSTALLATION OF BEAR PAWS

Original Issue Date: July 20, 2007
Amended Date: June 3, 2014

PART	REGULATION	MAKE	MODEL	TCDS	REQUIRED DOCUMENTATION			AML AMENDMENT DATE
					MASTER DOCUMENT LIST	INSTALLATION INSTRUCTIONS	INSTRUCTIONS for CONTINUED AIRWORTHINESS	
27	Federal Aviation	Robinson Helicopter Company	R66	R00015LA	Helitowcart Inc. Master Document List, Report no. HTC-MDL-BP-R44-1000 Rev. D, approved on August 28, 2013 or later Transport Canada approved revision.	Helitowcart Inc. Installation Instructions - R44/R66, Bear Paw Model BP44, document no. 314-0011-00, Rev. E, approved on August 9, 2013 or later Transport Canada approved revision.	Contained within Installation Instructions, page 6 of document no. 314-0011-00, Rev. E.	June 3, 2014

FAA Approved:

Gaetano Sciortino
Manager, New York
Aircraft Certification Office

NEW ENGLAND REGION
NEW YORK AIRCRAFT CERTIFICATION OFFICE
1600 STEWART AVENUE, SUITE 410
WESTBURY, NEW YORK 11590

INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT

This STC is official indications of FAA approval of your installation and may be used to authorize identical installation on other aircraft of the same model, subject to the limitation noted in the STC. It may be transferred, or otherwise made available to another party by means of a licensee arrangement; however, you are requested to advise this office when you transfer or grant licensee rights to the STC in order that we may take the necessary recording or reissuance action.

If you plan to manufacture and sell parts for installation on type certificated aircraft, please review FAR 21.502, which is applicable to parts imported into the U.S.

A copy of the STC and required documents should accompany each kit and installation. Also, your attention is directed to the limitations and conditions specified in the STC.

As recipient of this approval, except as provided in FAR21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in FAR 21.3(c).

The report should be communicated initially by telephone and subsequently in writing to the Manager, New York Aircraft Certification Office, telephone (516) 228-7300, mailing address: 1600 Stewart Avenue, Suite 410, Westbury, New York 11590. This first contact should take place within 24 hours after it has been determined that the failure required to be reported has occurred.

FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.

Gaetano Sciortino
Manager
New York Aircraft Certification Office

Nathalie Barbeau

From: Jean-Francois Lemire [jeanfrancoisl@ats-ast.com]
Sent: June-09-14 9:54 AM
To: Nathalie Barbeau
Cc: Mirko Zgela
Subject: 0709 - FAA SR02432NY amdt 6-5-2014
Attachments: SR02432NY AML 6-5-2014.pdf; SR02432NY Certificate Amended 6-5-2014.pdf; FAA - Info for Canadian Applicant.pdf

Categories: Cat 1 - Needs important Action

Nathalie,

Tu trouveras en pièce le certificat SR02432NY, la AML associé et une lettre de la FAA - *FAA Issuance Letter*.

Note: Transport Canada m'a mentionné que je recevrais les originaux d'ici quelques semaines.

Bonne journée.

Jean-François Lemire, ing.
DIRECTEUR D'INGÉNIERIE
ENGINEERING DIRECTOR
T: 819.601.8049 #203
jeanfrancoisl@ats-ast.com

Aviatech
SERVICES TECHNIQUES INC.
TECHNICAL SERVICES INC.
2595 St-Olivier
Trois-Rivières, Qc, Canada
G9A 4G1
F: 819.377.7928
www.ats-ast.com

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This email is confidential and protected. The sender does not waive the rights and obligations attached to it. Any distribution, use or copying of this message or the information it contains by other than (the) designated recipient(s) is prohibited. If you have mistakenly received this email, please notify the sender immediately.

United States of America

Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

IMPORT

Number SR02432NY

This certificate issued to Helitowcart (Vanair Inc.)
877A, Alphonse-Desrochers
Saint-Nicholas, Lévis, Québec
Canada G7A 5K6

certifies that the change in the type design for the following product with the limitations and conditions thereof as specified hereon meets the airworthiness requirements of * *of the* * *Regulations.*

Original Product - Type Certificate Number: *

Make: *

Model: *

* See attached FAA Approved Model List (AML) No. SR02432NY for the list of approved aircraft models, applicable airworthiness regulations, and required documents.

Description of Type Design Change:

1. Installation of Helitowcart Bear Paw Models BP350, BP44 or BP130 in accordance with Helitowcart Master Document Lists as specified in AML SR02432NY.
2. Instructions for Continued Airworthiness documents as specified in AML SR02432NY are required with this installation.

Limitations and Conditions:

1. A copy of this certificate and FAA AML No. SR02432NY must be maintained as part of the permanent records of this modified aircraft.
2. The Installer must determine whether this design change is compatible with previously approved modifications.
3. If the holder agrees to permit another person to use this certificate to alter a product, the holder must give the other person written evidence of that permission.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: March 26, 2007

Date reissued:

Date of issuance: July 20, 2007

Date amended: January 14, 2013, June 3, 2014

By direction of the Administrator

(*Signature*)

Gaetano Sciortino
Manager, New York
Aircraft Certification Office

(*Title*)

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

NEW ENGLAND REGION
NEW YORK AIRCRAFT CERTIFICATION OFFICE
1600 STEWART AVENUE, SUITE 410
WESTBURY, NEW YORK 11590

INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT

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FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.

Gaetano Sciortino
Manager
New York Aircraft Certification Office

FAA APPROVED MODEL LIST (AML) NO. SR02432NY
HELITOWCART (VANAIR, INC.)
FOR
INSTALLATION OF BEAR PAWS

Original Issue Date: July 20, 2007
Amended Date: June 3, 2014

PART	REGULATION	MAKE	MODEL	TCDS	REQUIRED DOCUMENTATION			AML AMENDMENT DATE
					MASTER DOCUMENT LIST	INSTALLATION INSTRUCTIONS	INSTRUCTIONS for CONTINUED AIRWORTHINESS	
27	Federal Aviation	Airbus Helicopters	AS350B, B1, B2, B3, BA, D, D1	H9EU	Helitowcart Inc. Master Document List, Report no. HTC-MDL-BP-AS350/355-1000 Rev. G, approved on December 21, 2012 or later Transport Canada approved revision.	Helitowcart Inc. Installation Instructions - AS350/355, Bear Paw Model BP350, document no. 314-0020-00-E, Rev. F, approved on December 21, 2012 or later Transport Canada approved revision.	Contained within Installation Instructions, page 8 of document no. 314-0200-00-E, Revision F.	June 3, 2014
27	Federal Aviation	Airbus Helicopters	EC 130B4	H9EU	Helitowcart Inc. Master Document List, Report no. HTC-MDL-BP-EC130-1000 Rev A, approved on May 13, 2011 or later Transport Canada approved revision.	Helitowcart Inc. Installation Instructions – EC130, Bear Paw Model BP130, document no. 314-0031-00-A, Rev. A, approved May 4, 2011 or later Transport Canada approved revision	Contained within Installation Instructions, page 6 of document no. 314-0031-00-A, Revision A.	June 3, 2014
27	Federal Aviation	Airbus Helicopters	AS355E, F, F1, F2, N	H11EU	Helitowcart Inc. Master Document List, Report no. HTC-MDL-BP-AS350/355-1000 Rev. G, approved on December 21, 2012 or later Transport Canada approved revision.	Helitowcart Inc. Installation Instructions - AS350/355, Bear Paw Model BP350, document no. 314-0020-00-E, Rev. F, approved on December 21, 2012 or later Transport Canada approved revision.	Contained within Installation Instructions, page 8 of document no. 314-0200-00-E, Revision F.	June 3, 2014
27	Federal Aviation	Robinson Helicopter Company	R44, R44 II	H11NM	Helitowcart Inc. Master Document List, Report no. HTC-MDL-BP-R44-1000 Rev. D, approved on August 28, 2013 or later Transport Canada approved revision.	Helitowcart Inc. Installation Instructions - R44/R66, Bear Paw Model BP44, document no. 314-0011-00, Rev. E, approved on August 9, 2013 or later Transport Canada approved revision.	Contained within Installation Instructions, page 6 of document no. 314-0011-00, Rev. E.	June 3, 2014

FAA APPROVED MODEL LIST (AML) NO. SR02432NY
HELITOWCART (VANAIR, INC.)
FOR
INSTALLATION OF BEAR PAWS

Original Issue Date: July 20, 2007
Amended Date: June 3, 2014

PART	REGULATION	MAKE	MODEL	TCDS	REQUIRED DOCUMENTATION			AML AMENDMENT DATE
					MASTER DOCUMENT LIST	INSTALLATION INSTRUCTIONS	INSTRUCTIONS for CONTINUED AIRWORTHINESS	
27	Federal Aviation	Robinson Helicopter Company	R66	R00015LA	Helitowcart Inc. Master Document List, Report no. HTC-MDL-BP-R44-1000 Rev. D, approved on August 28, 2013 or later Transport Canada approved revision.	Helitowcart Inc. Installation Instructions - R44/R66, Bear Paw Model BP44, document no. 314-0011-00, Rev. E, approved on August 9, 2013 or later Transport Canada approved revision.	Contained within Installation Instructions, page 6 of document no. 314-0011-00, Rev. E.	June 3, 2014

FAA Approved:

Gaetano Sciortino
Manager, New York
Aircraft Certification Office

Transport Canada *Statement of Conformity With Certification Basis*		**Date:** August 28, 2013 **Approval #** Q-SH06-24 Issue #4
Model No	**Type of equipment**	
R44, R44 II, R66, AS 350 D, AS 350 B, AS 350 B1, AS 350 B2, AS 350 B3, AS 350 BA, EC 130 B4, AS 355 E, AS 355 F, AS 355 F1, AS 355 F2, AS 355 N	BearPaw	Aviatech TECHNICAL SERVICES Inc.

Statement of Conformity

As the applicant to the modification approved under the STC Q-SH06-24 Issue #4, I hereby declare that the modifications listed above and defined in the following Master Document Lists:

For the R44 Series and R66:
HTC-MDL-BP-R44-1000, Revision D dated August 28, 2013

For the AS350 and AS355 Series:
HTC-MDL-BP-AS350/355-1000, Revision G dated December 21, 2012

For the EC130 - B4:
HTC-MDL-BP-EC130-1000, Revision A dated May 13, 2011

are conform to the best of my knowledge with its certification basis established by the Minister.

Signature: _____
Mirko Zgela (DAR#310)

On behalf of: Helitowcart

Position title: President

Company/Organization: Aviatech Technical Services Inc

Transport Canada Transports Canada

Department of Transport

Supplemental Type Certificate

This approval is issued to:

Helitowcart (Vanair Inc.)
877A, Alphonse-Desrochers
St-Nicholas, Lévis, Québec
Canada G7A 5K6

Number: SH06-24
Issue No.: 4
Approval Date: August 17, 2006
Issue Date: October 10, 2013

Responsible Office:	Québec
Aircraft/Engine Type or Model:	See Continuation Sheet on Page 2 of 2
Canadian Type Certificate or Equivalent:	See Continuation Sheet on Page 2 of 2
Description of Type Design Change:	Installation of Helitowcart BearPaw

Installation/Operating Data, Required Equipment and Limitations:

For the Robinson Models R44, R44 II and R66 Helicopters:

Installation of Helitowcart Bear Paw BP44 is to be performed in accordance with TC approved Helitowcart Master Document List Report: HTC-MDL-BP-R44-1000, Revision D dated August 28, 2013, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Document: 314-0011-00, BearPaw Model BP44, Installation Instructions – R44/R66, Revision E dated August 09, 2013 or later Transport Canada approved revision.

See Continuation Sheet Page 2 of 2

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

Jean-Pierre Francoeur
For Minister of Transport

Canada

Installation/Operating Data,
Required Equipment and Limitations (Cont'd):

For the Eurocopter (formerly Aerospatiale) AS350 and AS355 Series Helicopters:

Installation of Helitowcart Bear Paw BP350 is to be performed in accordance with TC approved Helitowcart Master Document List Report: HTC-MDL-BP-AS350/355-1000, Revision F dated April 8, 2010, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Document: 314-0020-00-E, BearPaw Model BP350, Installation Instructions – AS350/355, Revision F dated December 21, 2012 or later Transport Canada approved revision.

For the Eurocopter EC 130 Helicopters:

Installation of Helitowcart Bear Paw BP130 is to be performed in accordance with TC approved Helitowcart Master Document List Report: HTC-MDL-BP-EC130-1000, Revision A dated May 13, 2011, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Document: 314-0031-00-A, BearPaw Model BP130, Installation Instructions – EC130, Revision A dated May 04, 2011 or later Transport Canada approved revision.

Fleet Eligibility List		
Make	**Model**	**Type Certificate Data Sheet**
Robinson	R44	H-97
Robinson	R44 II	H-97
Robinson	R66	H-111
Eurocopter	AS 350 B	H-83
Eurocopter	AS 350 B1	H-83
Eurocopter	AS 350 B2	H-83
Eurocopter	AS 350 B3	H-83
Eurocopter	AS 350 BA	H-83
Eurocopter	AS 350 D	H-83
Eurocopter	EC 130 B4	H-83
Eurocopter	AS 355 E	H-87
Eurocopter	AS 355 F	H-87
Eurocopter	AS 355 F1	H-87
Eurocopter	AS 355 F2	H-87
Eurocopter	AS 355 N	H-87

– End –

Mr Kabinelli, Italy
HTC-2C 110920-10

HELI TOW CART BY VANAIR

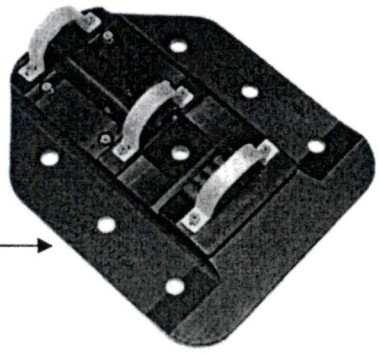
January 7, 2014

Object: **Shorter Bolts for tighter fit on Bearpaws for R44/R66**

To whom concerned,

It has been brought to our attention that some cases call for slightly longer or shorter bolts to get the best fit in attaching the U-Clips to the skids. As mentioned in the installation instructions, the use of longer or shorter bolts may be adjusted as required (314-0011-00- Rev. D - p 3/14, Step 3).

We have thus included in this package, extra bolts to allow you to adapt installation to your preference. In most cases shorter bolts may be needed so the extra bolt package includes AN4-14A:

Original bolts package contains:	Suggested installation: (Additional parts supplied)	
Front tip: AN4-**16**A	Front tip: AN4-**15**A	
Center: AN4-**15**A	Center: AN4-**14**A & Add Filler block as needed	
Aft: AN4-**15**A	Aft: AN4-**16**A	

Should you have any question, do not hesitate to contact us.

N. Barbeau

Nathalie Barbeau
VP Commercial Affairs,
Helitowcart (Vanair inc)

Letter_Previous_batches_Shorter_bolts_2014_01_07_(3rdVers)

Tel: +1.418.561.4512, Fax: +1.418.836.4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

2nd version

HELI TOW CART BY VANAIR

HTC-RC-130518-01 (07) (09) (10)

HTC-RC-130203-01 (08) (09)

STILL IN STOCK ON DEC 11, 2013 I CHANGED THE 1ST VERSION FOR THIS SECOND VERSION

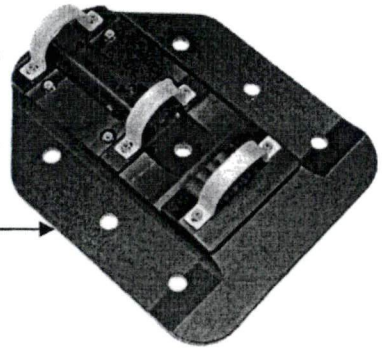
December 11, 2013

Object: **Shorter Bolts for tighter fit on Bearpaws for R44/R66**

To whom concerned,

It has been brought to our attention that some cases call for slightly longer or shorter bolts to get the best fit in attaching the U-Clips to the skids. As mentioned in the installation instructions, the use of longer or shorter bolts may be adjusted as required (314-0011-00- Rev. D - p 3/14, Step 3).

We have thus included in this package, extra bolts to allow you to adapt installation to your preference. In most cases shorter bolts may be needed so the extra bolt package includes AN4-15A and AN4-14A:

Original bolts package contains:		Extra bolts package contains:		
Front tip:	AN4-**16**A →	Front tip:	AN4-**15**A →	
Center:	AN4-**15**A →	Center:	AN4-**14**A & Add 1 washer →	
Aft:	AN4-**15**A →	Aft:	AN4-**16**A →	

Should you have any question, do not hesitate to contact us.

Nathalie Barbeau
VP Commercial Affairs,
Helitowcart (Vanair inc)

Letter_Previous_batches_Shorter_bolts_2013_12_11.doc

Tel: +1.418.561.4512, Fax: +1.418.836.4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

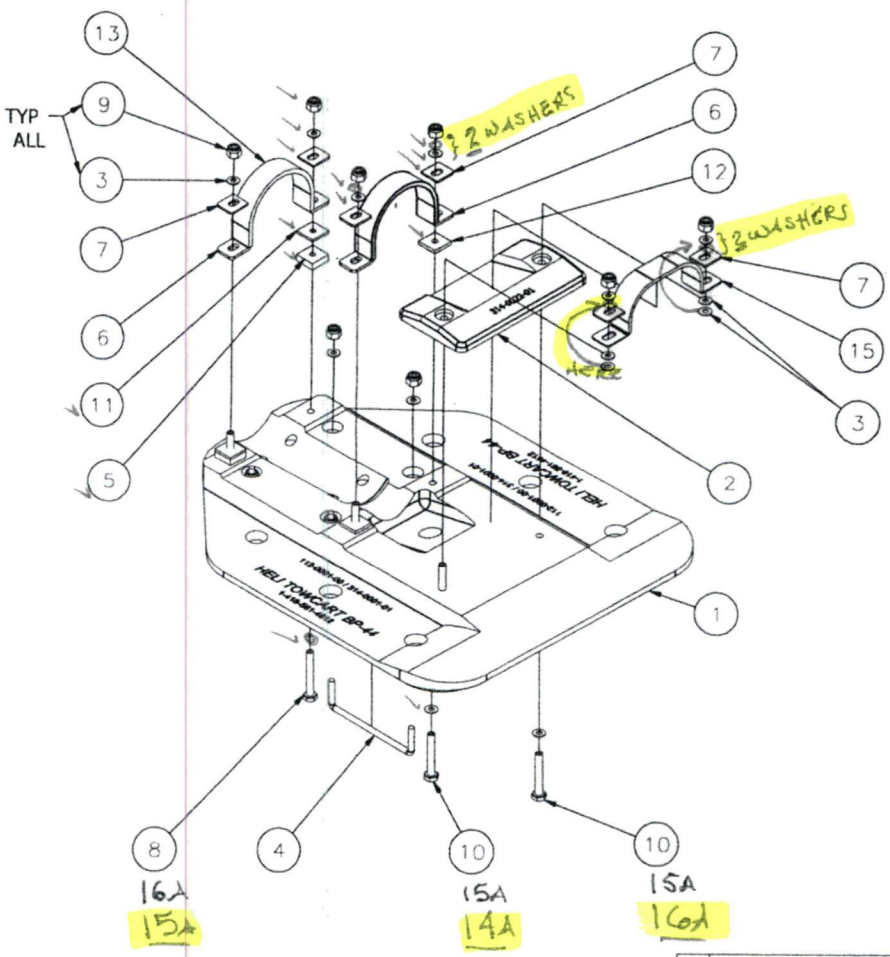
Book 2013 12 11 from Pierre-Luc Tardif (Can Heli)

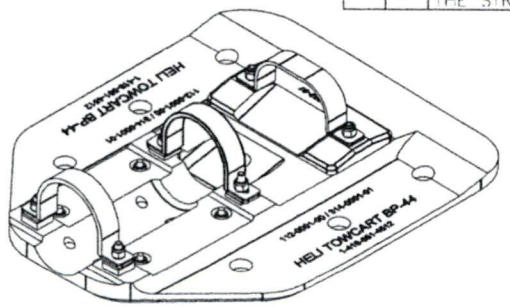
112-0001-00-E 1 OF 1

REVISIONS			
1 REWORKABLE 2 NONREWORKABLE 3 NOTED 4 NA			
ZONE	REV	DESCRIPTION	DR. & DATE
	A	ISSUE FOR PRODUCTION	
	B	MODIFY BOLT MODEL AND ADD FILER BLOCK	
	C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	
	D	ADDITION OF STREAMLINE PAD CONFIGURATION	
	E	ADDITION OF A REAR U SHAPED CLIP IN THE STREAMLINE PAD CONFIGURATION	

NOTE:
1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGHT TO BE DETERMINED AT THE INSTALLATION





ISO
SCALE 1 / 4

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SIZE
15	1	314-0023-15-A	BEARPAW U SHAPED CLIP REAR	STEEL	
14	1	314-0016-05-A	BEARPAW SHRINK 1X5	RUBBER	
12	2	314-0015-01-A	BEARPAW FILLER BLOCK 1/8	UHMW	1/8
11	2	314-0014-01-A	BEARPAW FILLER BLOCK 3/32	UHMW	3/32
10	4	251-0007-**-A	BOLT AN4-15A	STEEL	1/4
9	10	253-0001-**-A	NUT MS20365-428A	STEEL	1/4
8	2	251-0003-**-A	BOLT AN4-16A	STEEL	1/4
7	6	314-0007-15-A	BEARPAW SLOTTED CLIP S. PROT	STEEL	
6	2	314-0006-15-A	BEARPAW U SHAPED CLIP	STEEL	
5	2	314-0012-01-A	BEARPAW FILLER BLOCK 1/4	UHMW	1/4
4	2	314-0005-15-A	BEARPAW ICE BLADE ASSEMBLY	STEEL	
3	20	253-0001-**-A	WASHER AN960-416	STEEL	1/4
2	1	314-0022-01-A	BEARPAW FILLER BLOCK REAR	UHMW	1/2
1	1	314-0001-01-A	BEARPAW PAD	UHMW	

THE DESIGN DEPICTED IN THIS DRAWING IS THE EXCLUSIVE PROPERTY OF HELI TOW CART AND IN ACCEPTANCE OF THIS DRAWING THE RECIPIENT AGREES THAT IT WILL NOT BE USED FOR THE PURPOSE OF MANUFACTURE OR PROCUREMENT OF THE PART OR ASSEMBLY SHOWN HEREIN REPRODUCED OR OTHERWISE COPIED OR DISCLOSED TO ANY OTHER PERSON OR PARTY EXCEPT AS AUTHORISED IN WRITING BY HELI TOW CART

DRAWN	S. BERNIER 13/05/2010
DESIGNED	S. BERNIER 13/05/2010
CHECKED	
STRESS	
APPROVED	
APPROVED	
APPROVED M. ZOLA	13/05/2010

HELI TOW CART

BEARPAW
STREAMLINE ASSEMBLY

TAG CODE	SIZE	DRAWING NO.	REV
	B	112-0001-00-E	E

112-0001-00-E

2010.04-24

Front U clamp hardware

1 Bolt : P/N: AN4-15A
1 Washer under nut
1 Filler block 1/4 P/N: 314-0012-01
1 Filler block 3/32 P/N: 314-0014-01
1 Nut P/N: MS20-365-428
1 washer under bolt head
1 slotted clip

Middle U clamp hardware

1 Bolt P/N: AN4-14A
2 Washer under nut
1 Filler block 1/8 P/N: 314-0015-01
1 Nut P/N: MS20-365-428
1 washer under bolt head
1 slotted clip

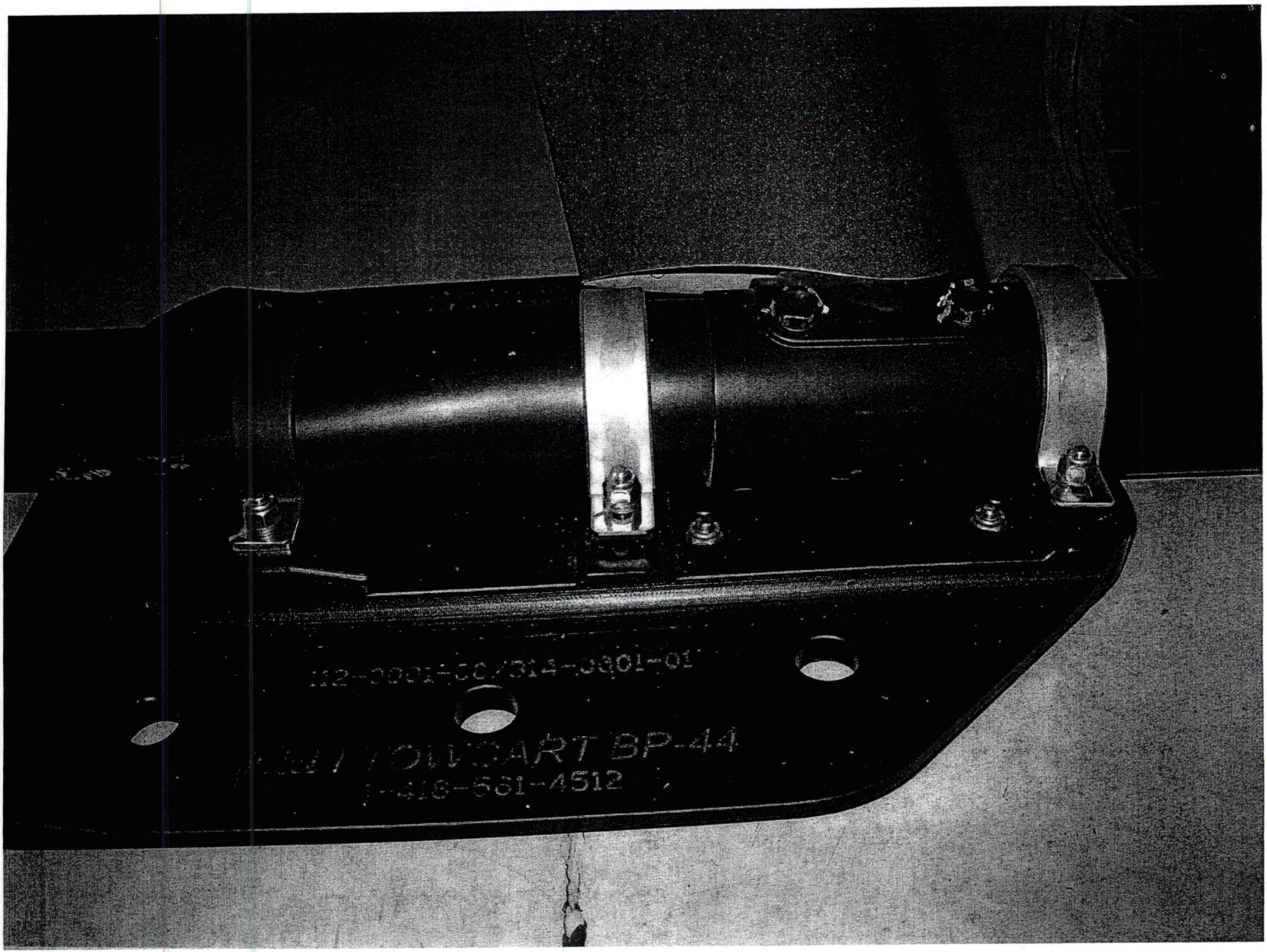
Aft U clamp hardware

1 bolt P/N: AN4-10A
2 washer under NUT
1 Rear Filler block P/N: 314-0022-01 (Note A)
1 Nut P/N: MS20-365-428
1 washer under bolt head
1 slotted clip

— Hardware Qty is the same for both side
— Only one side is counted

Note A : one for both side

* Whaske P/N: AN960-416


112-3001-00/314-3301-01
OLYCART BP-44
1-416-561-4512

Nathalie Barbeau

From: Pierre-Luc Tardif [PTardif@canadianhelicopters.com]
Sent: December-10-13 11:52 AM
To: nbarbeau@helitowcart.com
Subject: Hardware quantity for R66 bear paws
Attachments: SPHOTOCOPIE13121011550.pdf

Allo

Je t'ai fait une list du materiel que j ai eu besoin pour installer les bear paws.

Bonne journée

Pierre-Luc Tardif

Canadian Helicopters Limited
canadianhelicopters.com

CANADIAN HELICOPTERS
AN HNZ COMPANY

-----Transféré par Pierre-Luc Tardif/Canadian Helicopters le 10/12/2013 11:46 -----
A : ptardif@hnz.com
De : copieurkonica@canadianhelicopters.com
Date : 10/12/2013 11:45
Objet : Message from PHOTOCOPIEUR ECOLE DE QUEBEC

(Voir fichier joint : SPHOTOCOPIE13121011550.pdf)

=

HELI TOW CART BY VANAIR

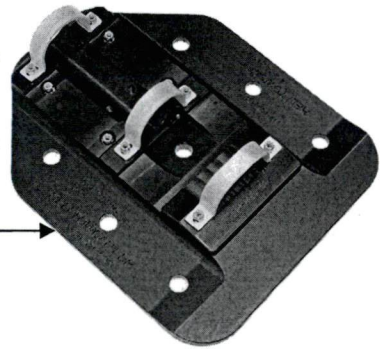
December 11, 2013

Object: **Shorter Bolts for tighter fit on Bearpaws for R44/R66**

To whom concerned,

It has been brought to our attention that some cases call for slightly longer or shorter bolts to get the best fit in attaching the U-Clips to the skids. As mentioned in the installation instructions, the use of longer or shorter bolts may be adjusted as required (314-0011-00- Rev. D - p 3/14, Step 3).

We have thus included in this package, extra bolts to allow you to adapt installation to your preference. In most cases shorter bolts may be needed so the extra bolt package includes AN4-15A and AN4-14A:

Original bolts package contains:		Extra bolts package contains:		
Front tip:	AN4-**16**A →	Front tip:	AN4-**15**A →	
Center:	AN4-**15**A →	Center:	AN4-**14**A & Add 1 washer →	
Aft:	AN4-**15**A →	Aft:	AN4-**16**A →	

Should you have any question, do not hesitate to contact us.

Nathalie Barbeau
VP Commercial Affairs,
Helitowcart (Vanair inc)

Tel: +1.418.561.4512, Fax: +1.418.836.4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

Aviatech
SERVICES TECHNIQUES inc.

Trois-Rivières, 27 novembre, 2013

Projet: A2007-09

Nathalie Barbeau
VP Commercial Affairs
Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Québec, Canada
G7A 5K6

Objet: STC SH06-24 Issue #4 - Installation of Helitowcart BearPaw

Madame,

Vous trouverez ci-joint la documentation pour la version 4 du certificat SH06-24 selon votre PO # nb-130702-01. Veuillez détruire le DVD que vous reçu avec la lettre datée du 8 novembre 2013.

si date DVD
28-nov 2013

En espérant le tout à votre entière satisfaction,

Sincèrement,

Jean-François Lemire, ing.
Directeur d'ingénierie

Aviatech Services Techniques Inc.
2595, rue St-Olivier
Trois-Rivières, Québec, G9A 4G1
Tel: (819) 601-8049 Fax: (819) 377-7928
Courriel: info@ats-ast.com
Site internet: www.ats-ast.com

Par tél.
Discussion avec Thirko de Swiatech
vs droit propriété intellectuelle.

DB → TI Zgela

2013 11 29

Suite à disc. avec Thirko il est entendu qu'il ne peut me donner accès aux doc. qui ont son droit de propriété intellectuelle

Si jamais on en a besoin vs vente de cie ou poursuite alors en faire demande à TC.

Il dit que lors de Due Diligence les acheteurs ne demandent qu'à voir les $ et ne consultent pas les STC.

En cas de litige vs sécurité divulgue il dit qu'il ne donne JAMAIS ses dossiers à ses avocats...

Il exige d'avoir une demande de la cour (ou juge) pour fournir qq doc. techniques.

Aussi si jamais il n'est plus en affaires on peut lui aussi accès aux documents vs TC qui les ont.

J'ai choisi de respecter ceci car c'est la façon de faire dans l'industrie et que je ne veux pas avoir des problèmes de diffusion (il aurait exigé une lettre de confidentialité, ce qui

Aviatech
SERVICES TECHNIQUES inc.

Trois-Rivières, 27 novembre, 2013

Projet: A2007-09

Nathalie Barbeau
VP Commercial Affairs
Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Québec, Canada
G7A 5K6

Objet: STC SH06-24 Issue #4 - Documentation complémentaire

Madame,

Pour des raisons de propriété intellectuelle, certains des documents de la Master Document List HTC-MDL-BP-R44-1000 révision D ne font pas partie du DVD client. Si vous avez besoin de ces documents, vous pouvez vous les procurer en contactant Aviatech Services Techniques ou Transport Canada aux coordonnées suivantes :

Aviatech Services Techniques	**Transport Canada**
2595 St-Olivier	Services de l'aviation civile
Trois-Rivières (Québec)	700, Place Leigh-Capreol
G9A 4G1	Dorval (Québec)
819-601-8049	H4Y 1G7
Contact : Mirko Zgela (Président)	1-800-305-2059

Dans l'éventualité ou Aviatech Services Techniques cesserait ses activités, toute la documentation serait encore disponible à Transport Canada.

Sincèrement,

Mirko Zgela
Design Approval Representative DAR #310

Aviatech Services Techniques Inc.
2595, rue St-Olivier
Trois-Rivières, Québec, G9A 4G1
Tel: (819) 601-8049 Fax: (819) 377-7928
Courriel: info@ats-ast.com
Site internet: www.ats-ast.com

Aviatech
SERVICES TECHNIQUES inc.

Trois-Rivières, 27 novembre, 2013

Projet: A2007-09

Nathalie Barbeau
VP Commercial Affairs
Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Québec, Canada
G7A 5K6

Objet: STC SH06-24 Issue #4 - Installation of Helitowcart BearPaw

Madame,

Vous trouverez ci-joint la documentation pour la version 4 du certificat SH06-24 selon votre PO # nb-130702-01. Veuillez détruire le DVD que vous reçu avec la lettre datée du 8 novembre 2013.

En espérant le tout à votre entière satisfaction,

Sincèrement,

Jean-François Lemire, ing.
Directeur d'ingénierie

Aviatech Services Techniques Inc.
2595, rue St-Olivier
Trois-Rivières, Québec, G9A 4G1
Tel: (819) 601-8049 Fax: (819) 377-7928
Courriel: info@ats-ast.com
Site internet: www.ats-ast.com

1. Ai payé ! / Prod à mon nom / Je suis resp.
Je refuse d'être prise en otage

2. Ai besoin accéder valeur à accès L.T.

2.1. Retraite ? Fin ops cie ?

2.2. Vente de mon entrep ?

2.3. Poursuite ?

2.4. Suis resp à 100% vs STC
mais j'aurais pas accès
aux rapports d'enq ?!!!

2.5.

Suggs: 1. Confidentiel -> je ne vais
pas diffuser

2. 1er refus / si conclus
je vous offre en PJ

3.

HELI TOW CART BY VANAIR

Authorized Release Certificate

1. Approving National Aviation Authority / Country **Transport Canada**			2. Authorized Release Certificate **Form One**		3.Form Tracking No. **HTC-RC-**
4. Approved Organization Name & Address: **Helitowcart (Vanair inc.)** **860, St-Nicolas, Levis, Quebec, Canada G7A 5K6**			5.Work Order/Contract/Invoice		
6. Item	7.Description	8.Part no.	9.Qty	10. Serial / Lot no.	11.Status / work
1	**Helitowcart – EPR44** **External Power Receptacle for R44**	**HTC-MDL-EGPR-R44-115** **P/N: 115-0001-00**	**1**	**HTC-LNF-**	**New**

12. Remarks

Canada: Transport Canada Approved manufacturer no 27-06, Transport Canada STC no. SH11-46
United States USA, FAA STC no. SR03080NY

13a. Certifies that the items identified above were manufactured in conformity to:	O Approved design data and are in condition for safe operation O Non approved design data specified in block 12.	14a. Certifies that unless otherwise specified in block 12, the work identified in block 11 and described in block 12 has been performed in compliance with the Canadian Aviation Regulations	O CAR 571.10 Maintenance release. O Other regulation specified in block 12.
13b. Signature	13c. Approved Organization. Number **Inspector no: 001 / STC no SH11-46** **Approved manufacturer no 27-06**	14b. Signature	14c. Approved Organization Number
13d. Name **Nathalie Barbeau, Quality Manager**	13e. Date (dd/mm/yyyy)	14d. Name	14e. Date (dd/mm/yyyy)

Ref: Transport Canada: Form One

1- *This document does not constitute authority to install the part.*
2- *Installers working in accordance with the national regulations of a country other than that specified in block 1 must ensure that their regulations recognize certifications from the country specified.*
3- *Statements 13a & 14a do not constitute installation certification. In all cases the technical record for the aircraft must contain an installation certification issued in accordance with the applicable national regulations before the aircraft may be flown*

Helitowcart / 877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6, Tel 1-418-561-4512,Fax: 1-418-836-4575, info@helitowcart.com www.helitowcart.com

HTC

- originaux dessins format ESO

- doc ing.

Loi accès à l'info

- Déposés au gouv ?
-
-

Cours de base
18-29 nov.

Donald Bérubé → Spécialiste/contrat

Resp. OTTAWA
Qualité Aircraft Specialty →

* Règlement: RAC 521. + SOR 521.

liste des doc. requis

HELI TOW CART BY VANAIR

Authorized Release Certificate

1. Approving National Aviation Authority / Country **Transport Canada**			2. Authorized Release Certificate **Form One**		3.Form Tracking No. **HTC-RC-**
4. Approved Organization Name & Address: **Helitowcart (Vanair inc.)** **860, St-Nicolas, Levis, Quebec, Canada G7A 5K6**			5.Work Order/Contract/Invoice		
6. Item	7.Description	8.Part no.	9.Qty	10. Serial / Lot no.	11.Status / work
1	**Helitowcart – EPR44** **External Power Receptacle for R44**	**HTC-MDL-EGPR-R44-115** **P/N: 115-0001-00**	**1**	**HTC-LNF-**	**New**

12. Remarks

Canada: Transport Canada Approved manufacturer no 27-06, Transport Canada STC no. SH11-46
United States USA, FAA STC no. SR03080NY

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13d. Name **Nathalie Barbeau, Quality Manager**	13e. Date (dd/mm/yyyy)	14d. Name	14e. Date (dd/mm/yyyy)

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Protect your helicopter with BearPaws

HELI TOW CART

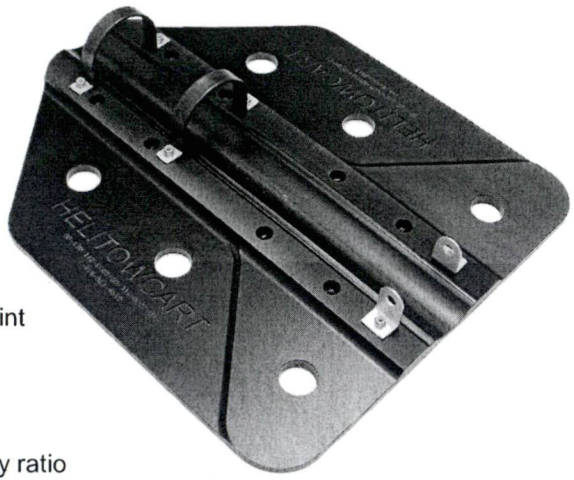
BearPaws

For **R44, R66, AS350, AS355, EC130**

BP44, BP350, BP130

Perform Safe landings on Snow, on Clear Ice, as well as on Spongy Soils & in Rivers

Helitowcart BearPaws offer Great Quality at an Affordable Price

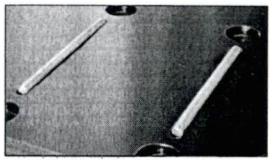


Efficient Design

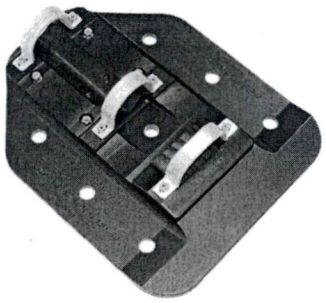
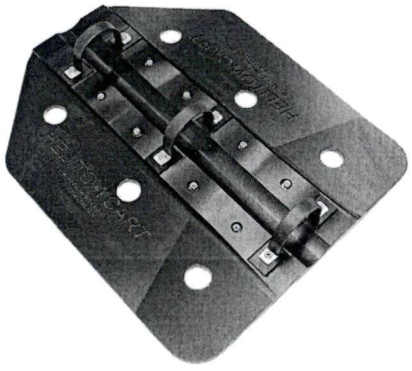
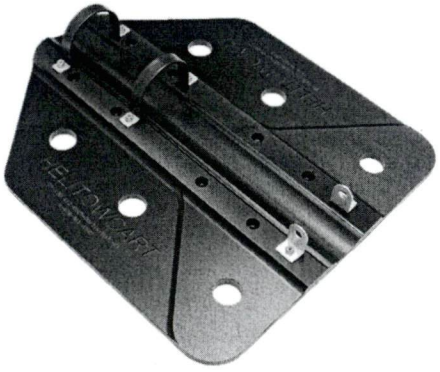
1) Pad shape streamlined to allow dust & gravel to easily flow off
2) Pad with flow holes to allow water release when taking off from rivers
3) Pad shape reinforced at rear for long term durability of landing contact point

Sturdy Construction

1) Sturdy Attachment Clips made of 14ga Stainless Steel
2) Pads made of Long Lasting UHMW-Polymer for best sturdiness-flexibility ratio
3) Pads profile optimized through finite element analysis to obtain best lightweight-strength ratio



Iceblades: Helitowcart introduced iceblades for bearpaws to provide better traction on clear ice. This reduces risks of helicopter skidding on ice. Iceblades also offer extra protection to pads especially for helicopters used for training. Iceblades are included with the BearPaw kit.

Models:	BP44	BP350	BP130
For	**R44, R66** 	**AS350, AS355** 	**EC130** 
STCs	**Canada** : Q-SH-06-24 **United States**: SR02432NY Australia & New Zealand: Use US STC	**Canada** : Q-SH-06-24 **United States**: SR02432NY Australia & New Zealand: Use US STC	**Canada** : Q-SH-06-24 **United States**: SR02432NY Australia & New Zealand: Use US STC
P/N	112 0001 00	112 0002 00	112 0005 00
Name:	BP44 Bearpaws	BP350 Bearpaws	BP130 Bearpaws
Weight	10 lbs / 4.54 kg	18.3 lbs / 8.5kg	20 lbs / 9.1kg

P. Gadbois 2015 02 11

info@helitowcart.com +1.418.561.4512 www.helitowcart.com

Protect your helicopter with BearPaws

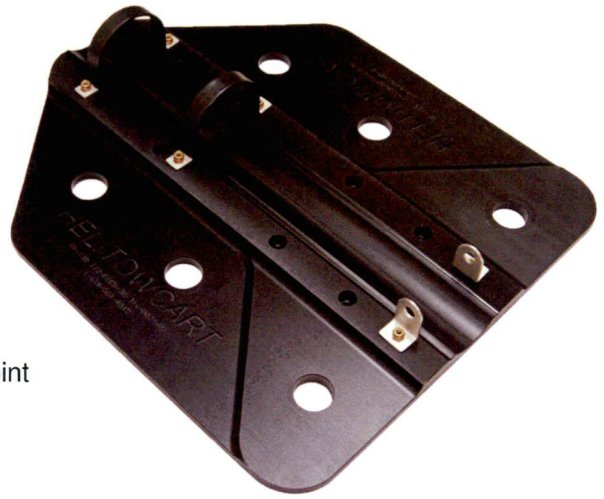
HELI TOW CART

BearPaws

For **R44, AS350, EC130**

BP44, BP350, BP130

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Helitowcart BearPaws offer Great Quality at an Affordable Price

Efficient Design

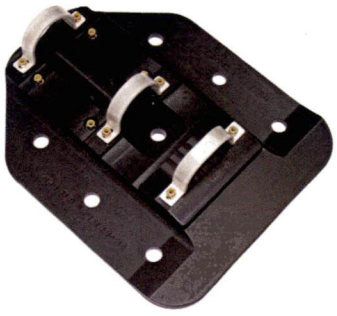
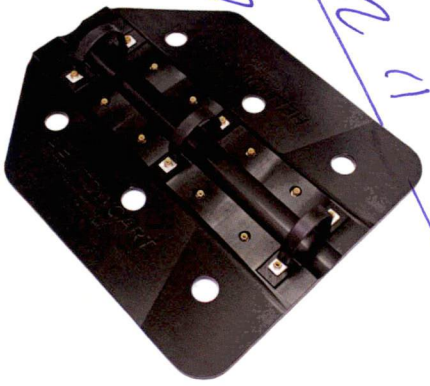
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3) Pad shape reinforced at rear for long term durability of landing contact point

Sturdy Construction

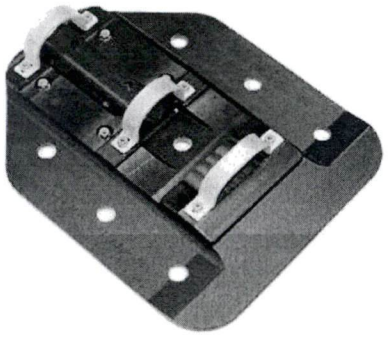
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2) Pads made of Long Lasting UHMW-Polymer for best sturdiness-flexibility ratio
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Models:	BP44	BP350	BP130
For	R44	AS350, AS355	EC130
			
	New Larger Pad		*New* for EC130
STCs	Canada : Q-SH-06-24 United States: SR02432NY Australia & New Zealand: Use US STC	Canada : Q-SH-06-24 United States: SR02432NY Australia & New Zealand: Use US STC	Canada : Q-SH-06-24 United States: SR02432NY Australia & New Zealand: Use US STC
P/N Name:	**112 0001 00 C** **BP44 Bearpaws**	**112 0002 00 B** **BP350 Bearpaws**	**112 0005 00 A** **BP130 Bearpaws**
eight	6.9 lbs / 3.1 kg	18.3 lbs / 8.5kg	20 lbs / 9.1kg

HELI TOW CART By Vanair



☐ BP44 BearPaw (for R44 & R66)

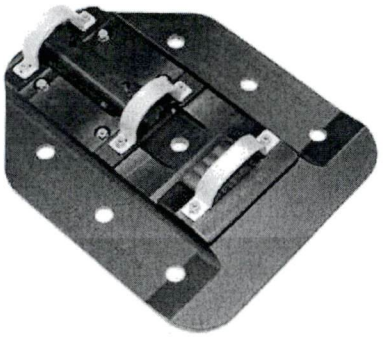
☐ _____

877A Alphonse-Desrochers, Saint-Nicholas, Levis, Quebec, Canada G7A 5K6 / Made in Canada

www.helitowcart.com +1.418.561.4512 info@helitowcart.com

htc 273-0001-04-D

HELI TOW CART By Vanair



☐ BP44 BearPaw (for R44 & R66)

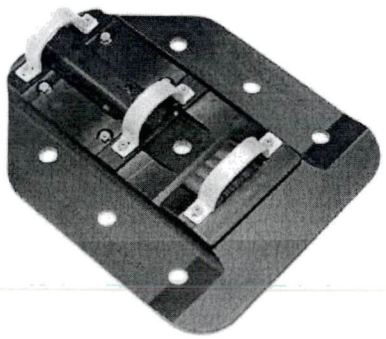
☐ _____

877A Alphonse-Desrochers, Saint-Nicholas, Levis, Quebec, Canada G7A 5K6 / Made in Canada

www.helitowcart.com +1.418.561.4512 info@helitowcart.com

htc 273-0001-04-D

HELI TOW CART By Vanair



☐ BP44 BearPaw (for R44 & R66)

☐ _____

877A Alphonse-Desrochers, Saint-Nicholas, Levis, Quebec, Canada G7A 5K6 / Made in Canada

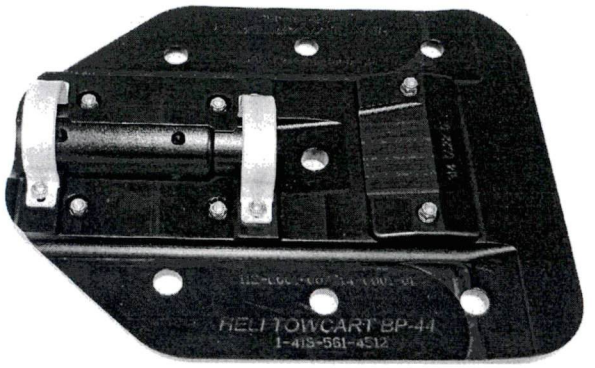
www.helitowcart.com +1.418.561.4512 info@helitowcart.com

htc 273-0001-04-D

2013 09 27

V:\20_ENG\2_LABELS\BOX_Labels\273-0001-04-D_BP4466_BOX_LABEL

HELI TOW CART By Vanair



☐ BP44 BearPaw - Streamline (2)

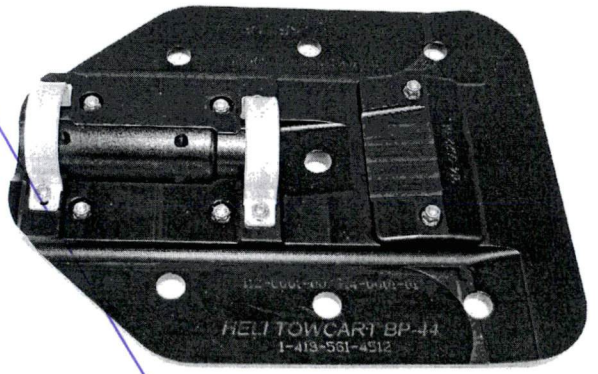
☐ _____

877A Alphonse-Desrochers, Saint-Nicholas, Levis, Quebec, Canada G7A 5K6 / Made in Canada

www.helitowcart.com +1.418.561.4512 info@helitowcart.com

htc 273-0001-04-C

HELI TOW CART By Vanair



☐ BP44 BearPaw - Streamline (2)

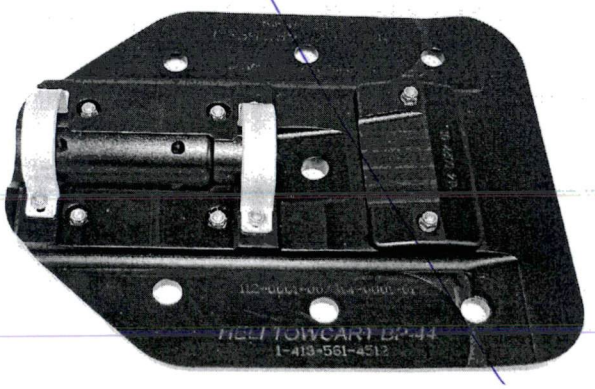
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htc 273-0001-04-C

HELI TOW CART By Vanair



☐ BP44 BearPaw - Streamline (2)

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htc 273-0001-04-C

D. Barbeau 2009 12 28

F:\1_Helitowcart_DATA\001_HTC SERVER\01_OPERATIONS\200_ENGINEERING\301_BEARPAWS\a_DMR_BP44\BP44_DMR_(updated_2011_01_22)\INTERNAL_OPERATIONS_DOCUMENTS\273-0001-04-C BearPaw LABEL

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Master Document L

Helitowcart Inc.

Robinson R44 Helicopters
Installation of BearPaw Model BP44

Report: HTC-MDL-BP-R44-1000 (Rev C)

Périmé - 2012-11-11

PREPARED BY: _____ DATE: APR 15, 2010

Simon Bernier
Staff Specialist - Structures

APPROVED BY: _____ DATE: APR 15, 2010

Mirko Zgela
Design Approval Representative DAR #310

Revision	Revision Date	Revision of Entry	Entered by
C	2010 04 15	Addition of a rear U shaped clip in the streamline BearPaw Pad configuration	S. Bernier
B	2009 10 22	Introduction of new streamline BearPaw Pad configuration as alternate	S. Bernier
A	2006 09 07	Drawings are added to include the provision of shims during the installation.	N. Barbeau

N. Barbeau 2010-04-24

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1.0 MASTER DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-R44-1000	Compliance Plan - Robinson R44 Helicopters -Installation of Bear Paw Model BP44	NC	DAR 310	July 4, 2006
314-0011-00	BearPaw Model BP44 – Installation Instructions - R44	D	DAR 310	Apr 15, 2010
AAC-STR-BP-R44-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP44	NC	DAR 310	July 4, 2006
AAC-FTR-C-FBLO	Simple External Modification – Applicant's Flight Test Plan/Report	NC	DAR 310	Aug 4, 2006
HTC-TM-BP-R44-1000	Structural Substantiation - BearPaw Streamline BP44	NC	DAR 310	Oct 22, 2009
ATS-EO-BP-R44-1000	Engineering Order - BearPaw Streamline BP44	NC	DAR 310	Apr 15, 2010

2.0 MASTER DRAWINGS

Drawings # / P/N	Title	Revision Status	Approval by	Date
112-0001-01-C	BearPaw Assembly	C	DAR 310	Sept 6, 2006
112-0001-01-E	BearPaw Streamline Assembly	E	DAR 310	Apr 15, 2010
314-0002-15-A	BearPaw – Iceblade	A	DAR 310	Apr 24, 2006
314-0004-15-A	BearPaw – Iceblade Threaded Rod	A	DAR 310	Apr 24, 2006
314-0005-15-A	BearPaw – Iceblade Assembly	A	DAR 310	Apr 24, 2006
314-0001-01-A	BearPaw - Pad	A	DAR 310	Apr 24, 2006
314-0001-01-B	BearPaw – Pad Streamline	B	DAR 310	Oct 22, 2009
314-0006-15-B	BearPaw – U Shaped Clip	B	DAR 310	July 31, 2006
314-0023-15-A	BearPaw – Low U Shaped Clip	A	DAR 310	Apr 15, 2010
314-0007-15-B	Bearpaw – Slotted Clip Support	B	DAR 310	July 31, 2006
314-0012-01-A	Filler Block ¼"	A	DAR 310	Aug 8, 2006
314-0014-01-A	Filler Block 3/32"	A	DAR 310	Sept 6, 2006
314-0015-01-A	Filler Block 1/8"	A	DAR 310	Sept 6, 2006
314-0022-01-A	Filler Block Rear	A	DAR 310	Oct 22, 2009

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3.0 REFERENCE DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
314-0009-01-A	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0008-01-A	Propriétés du UHMW TIVAR	A	N/A	May 24, 2006
314-0017-05-A	Heat Shrink Specifications	A	N/A	Sept 6, 2006

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HELI TOW CART BY VANAIR

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REVISIONS & APPROVAL	**p.8**

Annex A (BearPaw Assembly Drawing)
Annex B (BearPaw Pad Allowable Damage Drawing)

Revised D 2013.11.11

FOR: R44 BATCH ONLY WITH US. STCs

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2010.04.24

INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw for your Robinson R44.

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table (1):

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	860 Marie-Victorin St-Nicholas, Levis, Quebec, Canada, G7A 3S9	Tel:1 (418) 561-4512 Fax:1 (418) 836-2291 info@helitowcart.com

Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

Table 2 – Robinson Helicopter Effectivity

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0271 thru 9999	H11NM
R44 II	1140, 10001 and subsequent	H11NM

Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

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INSTALLATION

BearPaw Installation

Reference Documentation:
[1] Robinson R44 - Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
[2] Annex A – BearPaw Assembly Drawings (112-0001-00-C & 112-0001-00-E)

Step 1: Helicopter Preparation
- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

Step 2: BearPaw Preparation
- With IceBlade Option: Install ice blades (Qty:2) under BearPaw pad as per drawing (112-0001-00) Ref [2];
- With IceBlade Option: Insert washer (Washer P/N 263-0001-17) through threaded part of the ice blade and secure with nut (P/N 262-0001-17);
- Position the BearPaw under skid at the aft intersection with the cross tube as per figure 1 with narrow edge pointing forward.

Step 3: BearPaw Set Up
- Insert washers (P/N 263-0001-17) through all four front bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert bolts(P/N261-0002-17) & (261-0003-17) and washer (P/N 263-0001-17) through BearPaw pad as per drawing (112-0001-00) Ref [2]
- If Streamline model, then apply step 3.1. See step 3.1described below.
- Position the BearPaw pad under the skid
- Insert small filler blocks (P/N314-0012-01) & (P/N314-0014-01) at front of BearPaw& Insert filler blocks (P/N314-0015-01) at center of BearPaw as per drawing (112-0001-00) Ref [2];
- The use of filler blocks mentioned above may be increased, decreased, replaced or complemented by the use of washers (P/N 263-0001-17). Bolts (P/N261-0002-17) & (261-0003-17) may be replaced by longer or shorter AN4 bolts as required.
- Insert both U-shaped clips (P/N 314-0006-15) through bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert slotted clip supports (P/N 314-0007-15) through all four bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb.

Step 3.1: With the Streamline Version of the Bearpaw (P/N 112-0001-00-E)
- Insert washers (P/N 263-0001-17) through bolts (P/N261-0002-17)
- Insert bolts (P/N261-0002-17) and washer (P/N 263-0001-17) through the rear BearPaw pad as per drawing (112-0001-00-E) Ref [2]
- Insert rear filler block (P/N 314-0022-01) at the rear of BearPaw as per drawing (112-0001-00-E) Ref [2];
- Insert two washers (P/N 263-0001-17) per bolts (P/N261-0002-17) (four washers total)
- Insert Low U-shaped clip (P/N 314-0023-15) through bolts: (P/N261-0002-17) as per drawing (112-0001-00-E) Ref [2];
- Insert slotted clip supports (P/N 314-0007-15) through bolts. Position slotted clip supports with rounded edge toward helicopter skid;

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- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Bolts (P/N261-0002-17) may be replaced by longer or shorter AN4 bolts as required. Max. torque on nuts 60 in.-lb.

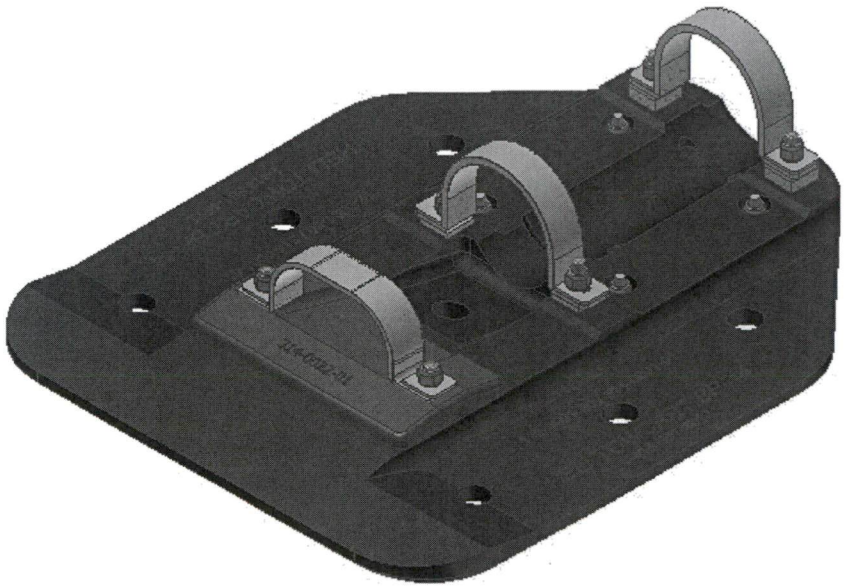
Step 4: Final Step

- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

Figure 1 - Installed BearPaw Model BP44 (112-0001-00-C)



Figure 2 - BearPaw Model BP44 Streamline (112-0001-00-E)



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BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

Step 2: BearPaw Removal

- Remove nuts (P/N 262-0001-17), washers (P/N 263-0001-17), slotted clip support (P/N 314-0007-15) and U-shaped clips (P/N 314-0006-15);
- With the Streamline Version of the Bearpaw (P/N 112-0001-00-E) remove nuts (P/N 262-0001-17), washers (P/N 263-0001-17), slotted clip support (P/N 314-0007-15) and rear U-shaped clips (P/N 314-0023-15);
- Remove BearPaw pad (P/N 314-0001-01);
- Inspect skid tubes to confirm serviceability;
- Re-install aft wearshoe with screws as per reference [1];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	5.9 Lb 2.7 Kg	0.0in. (0.0mm)	0.0lb-kg (0.0mm-kg)	128.5 in 3.26 m	758.1 in-lb 8.8 m-kg
Helitowcart BearPaw Model BP44 - Streamline	7.0 Lb 3.2 Kg	0.0in. (0.0mm)	0.0lb-kg (0.0mm-kg)	128.5 in 3.26 m	889.5 in-lb 10.4 m-kg

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Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Name (Drawing no.)
BearPaw Model BP44	**1**	**112-0001-00**	**112-0001-00-C / BearPaw Assembly** **112-0001-00-E / BearPaw Streamline Assembly**
BearPaw pad	1	314-0001-01	314-0001-01-A / BearPaw – Pad (VNR088) 314-0001-01-B / BearPaw – Pad Streamline
Low U Shaped Clips	1	314-0023-15	BearPaw - Low U Shaped Clips
U Shaped Clips	2	314-0006-15	BearPaw - U Shaped Clips (VNR087)
Slotted Clip Support	6	314-0007-15	BearPaw - Slotted Clip Support (VNR089)
Filler blocks rear	1	314-0022-01	BearPaw – Filler block Rear
Filler blocks 1/4"	2	314-0012-01	BearPaw – Filler block ¼" (VNR099)
Filler blocks 3/32"	2	314-0014-01	BearPaw – Filler block 3/32" (VNR103)
Filler blocks 1/8"	2	314-0015-01	BearPaw – Filler block 1/8" (VNR104)
Bolts	2 *(+2)	261-0002-17	Bolt- AN4-15 *Note: for Streamline Assembly
Bolts	2	261-0003-17	Bolt- AN4-16
Nuts	4 *(+2)	262-0001-17	Nut- MS20-365-428 *Note: +2 for Streamline Assembly
Washers	8 *(+8)	263-0001-17	Washer – AN960-416 *Note: +8 for Streamline Assembly
Shrink	3	314-0016-00	BearPaw – Shrink Specifications & Installation
IceBlade Option Model OIB	**2**	**314-0005-15**	**VNR086 / IceBlade Assembly**
Nuts	4	262-0001-17	Nut- MS20-365-428
Washers	4	263-0001-17	Washer – AN960-416

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INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured,
- Check that BearPaws are free from visible damage,
- If damage is found, verify allowable damage according to:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01-A (VNR088) page 2 of 2) or
  Annex B – BearPaw Streamline Allowable Damage Drawing (314-0001-01-B page 3 of 3).

Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 300 flying hours or yearly whichever comes first.
- The Helitowcart BearPaw can be inspected concurrently with the R44 landing gear inspection.
- Recommended tolerance for performance of inspection is +/- 10% of the 300 hours period.
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

300 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal",
- Inspect all parts for damage & wear. See table & figure below for allowable damage,
- Replace all damaged parts,
- Replace parts worn beyond the tolerances indicated below.
- See Tolerances for cracks & wear:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01-A (VNR088) page 2 of 2); or
  Annex B – BearPaw Streamline Allowable Damage Drawing (314-0001-01-B page 3 of 3).

Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,075	Stiffeners: NO cracks in stiffeners. Pockets: Cracks are acceptable in the Helitowcart BearPaw pocket areas to a maximum length of 0,5" provided they are 0,25" away from the stiffener radius change. Stop drill cracks with a 0,125" hole.
D	0,350	0,050	

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E	N/A	N/A	No cracks allowed in zone E
F	0,350	0,050	For P/N 314-0001-01-B Only
G	0,75	0,050	For P/N 314-0001-01-B Only

Overhaul Requirements

- Not applicable for the designated application of this device.

REVISIONS & APPROVAL

Revisions

Date	Rev	Nature of Revisions
April 15, 2010	D	Addition of a rear U shaped clip in the Streamline BearPaw Pad configuration.
October 22, 2009	C	Introduction of new streamline BearPaw Pad configuration as alternate.
September 7, 2006	B	- Added filler blocks and heat shrink to product list. - Modified recommended bolt models (lengthened) - Revised inspection requirements from 100 hour to 300 hour intervals. - Identification of the IceBlade assembly as an optional feature.
June 12, 2006	A	Initial issue

Approval

Internal Approval :		
Helitowcart inc.	Lucien Barbeau Lucien Barbeau, President	April 15, 2010
External Approval :		
Transport Canada	Mirko Zgela Mirko Zgela, DAR #310	April 15, 2010

Annex A

See: BearPaw Assembly, drawing no. 112-0001-00-C
BearPaw Streamline Assembly, drawing no. 112-0001-00-E

Annex B

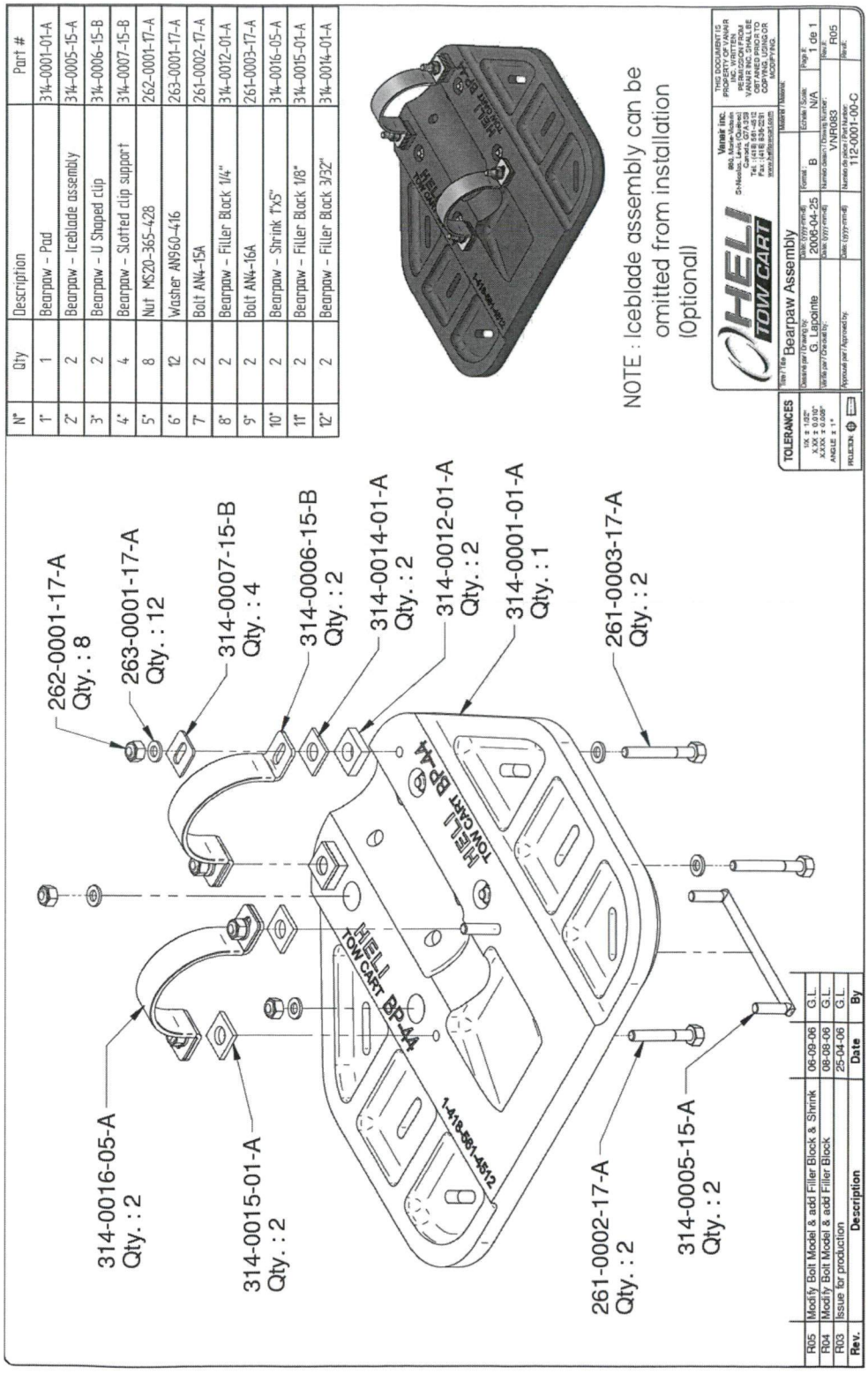
See: BearPaw Pad Allowable Damage Drawing, drawing no. 314-0001-01-A (VNR088) page 2 of 2.
BearPaw Streamline Allowable Damage Drawing, drawing no. 314-0001-01-B page 3 of 3)

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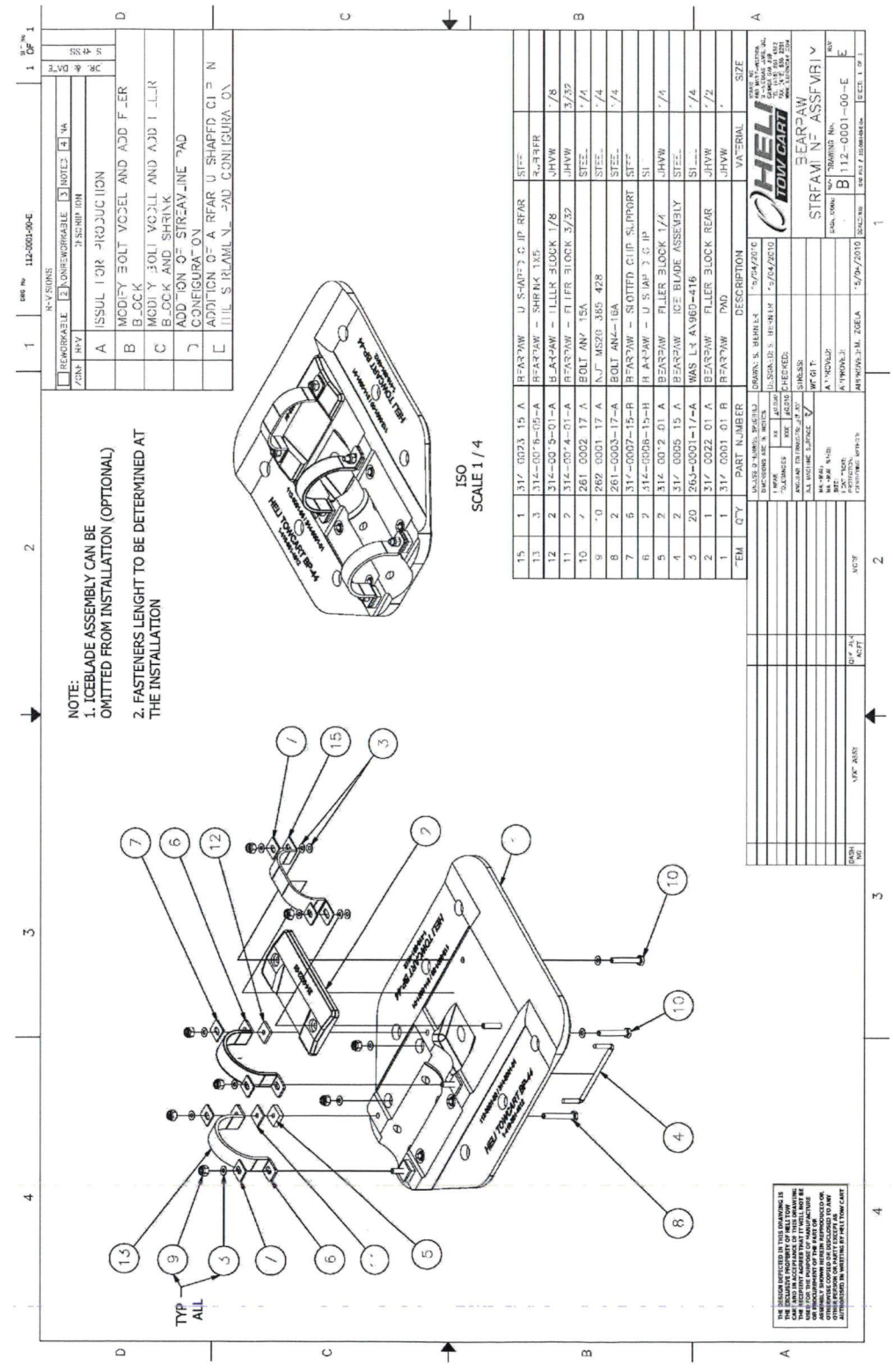
Annex A

BearPaw Assembly, Drawing no. 112-0001-00-C
BearPaw Streamline Assembly, Drawing no. 112-0001-00-E

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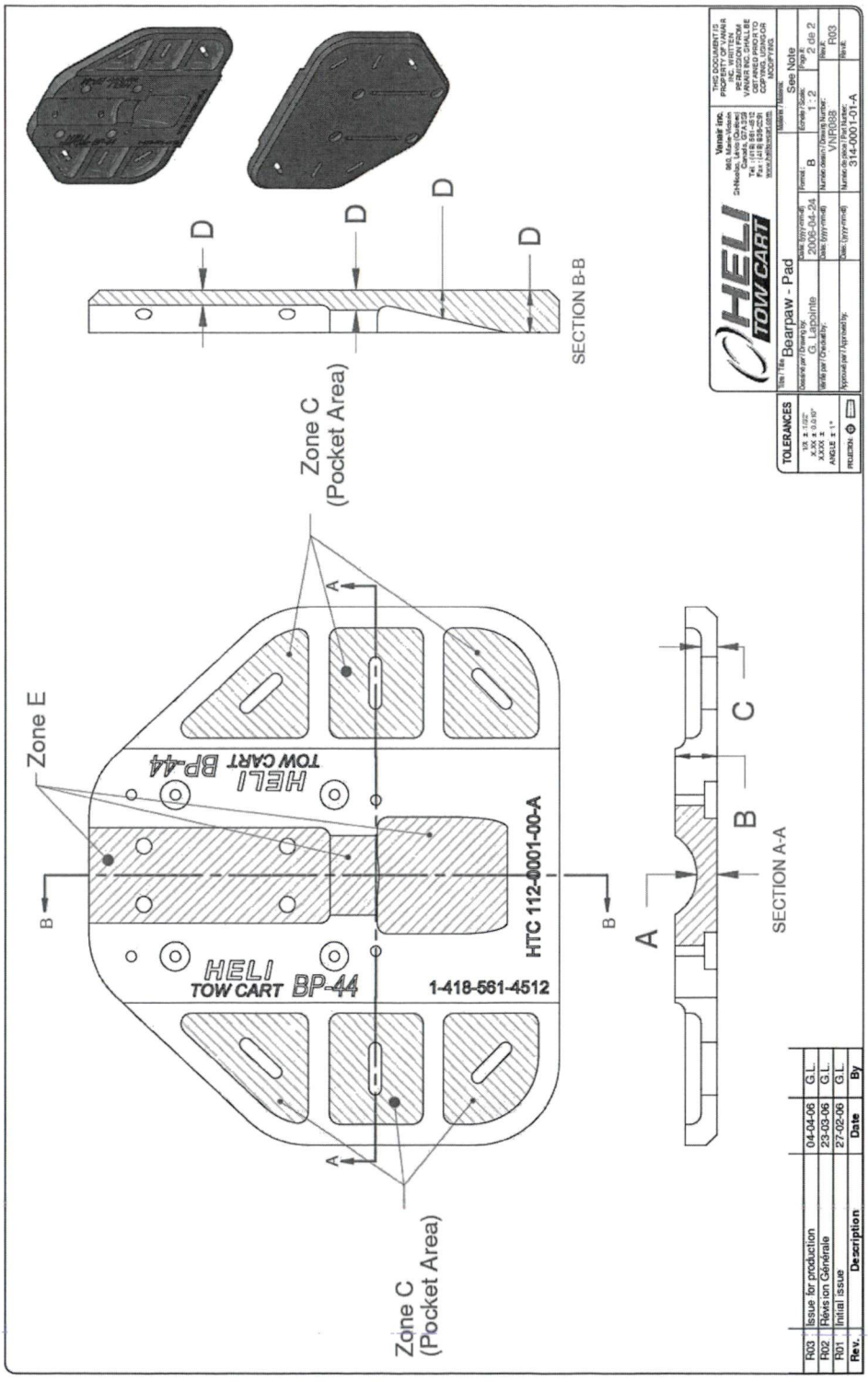


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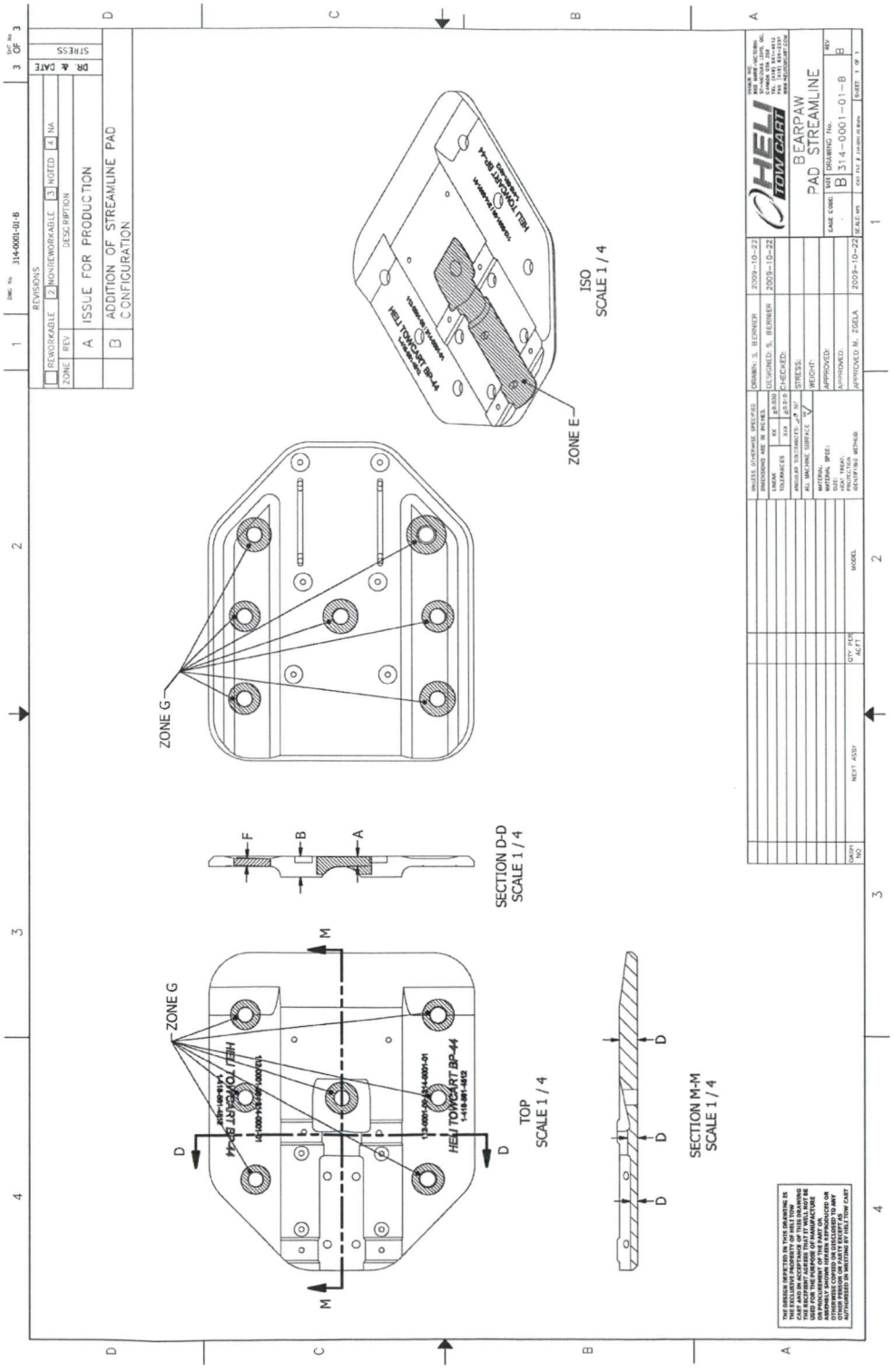
Annex B

BearPaw Pad Allowable Damage Drawing, Drawing no. 314-0001-01-A (VNR088), Page 2 of 2
BearPaw Streamline Allowable Damage Drawing, Drawing no. 314-0001-01-B, Page 3 of 3

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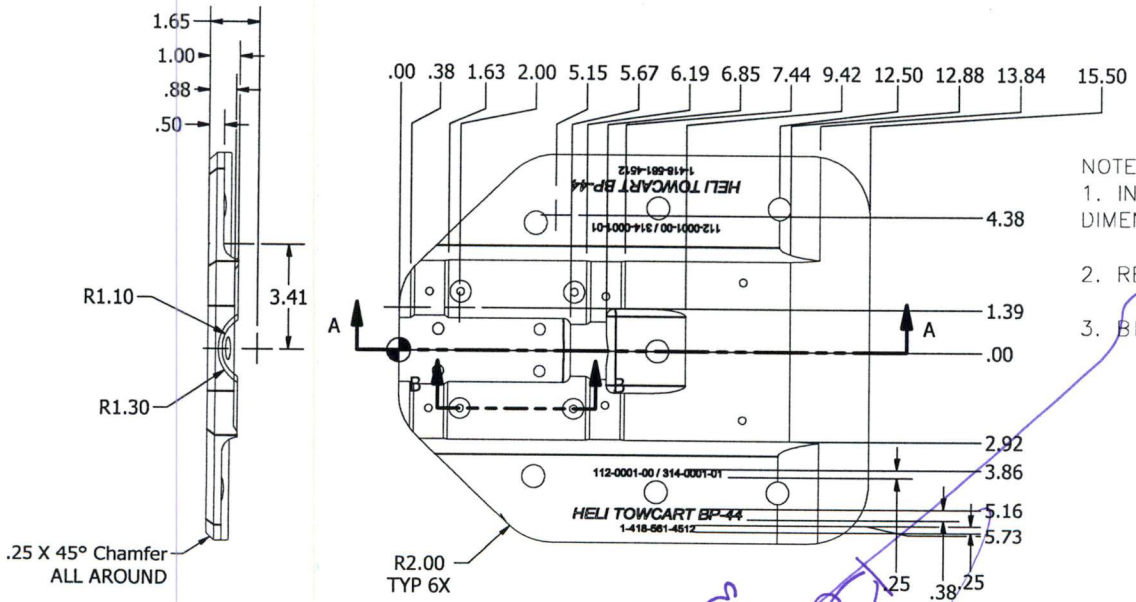
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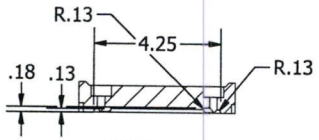
REVISIONS			
☐ REWORKABLE ☒ NONREWORKABLE ☐ VOIED ☐ NA			
ZONE	REV	DESCRIPTION	DR. & DATE / STRESS
	A	ISSUE FOR PRODUCTION	
	B	ADDITION OF STREAMLINE PAD CONFIGURATION	



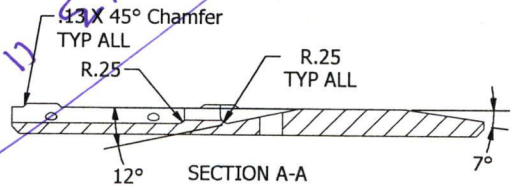
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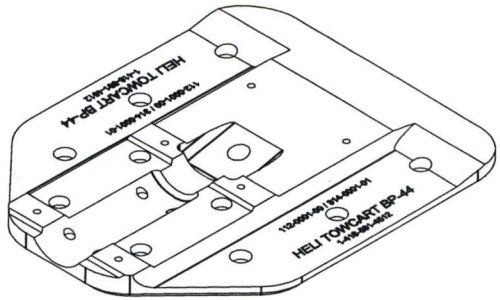
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SECTION B-B
SCALE 1 / 4



SECTION A-A
SCALE 1 / 4



ISO
SCALE 1 / 4

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994. DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX

3. BREAK CORNERS 0.050" MIN

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ITEM	QTY	PART NUMBER	DESCRIPTION		SIZE
1	1	314 0001 01 B	BEARPAW PAD	U-HMW	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN: S. BERNIER	2009-10-22	HELI TOW CART
UNLESS OTHERWISE SPECIFIED TOLERANCES: .XX ±0.030 .XXX ±0.010 ANGULAR TOLERANCES: ± 30'	DESIGNED: S. BERNIER	2009 10 22	
	CHECKED:		BEARPAW PAD STREAMLINE
	STRESS:		
	WEIGHT:		
	APPROVED:		
	APPROVED: M. ZOELA	2009 10 22	
	SCALE: NTS		DWG. NO. B 314-0001-01-B REV B

XX 0,03"
XXX 0,01"

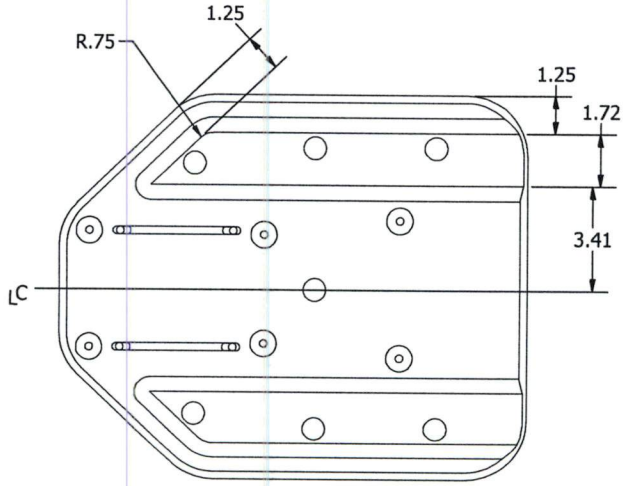
D. Bastien
2010.01.06

314-0001-01-B

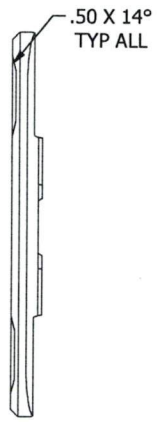
Aff !

Enlever BP44, gravé ?

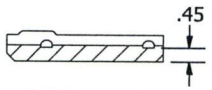
REVISIONS			
☐ REWORKABLE ☒ NONREWORKABLE ☐ NOTED ☐ NA			DR. & DATE / STRESS
ZONE	REV	DESCRIPTION	
	A	ISSUE FOR PRODUCTION	
	B	ADDITION OF STREAMLINE PAD CONFIGURATION	



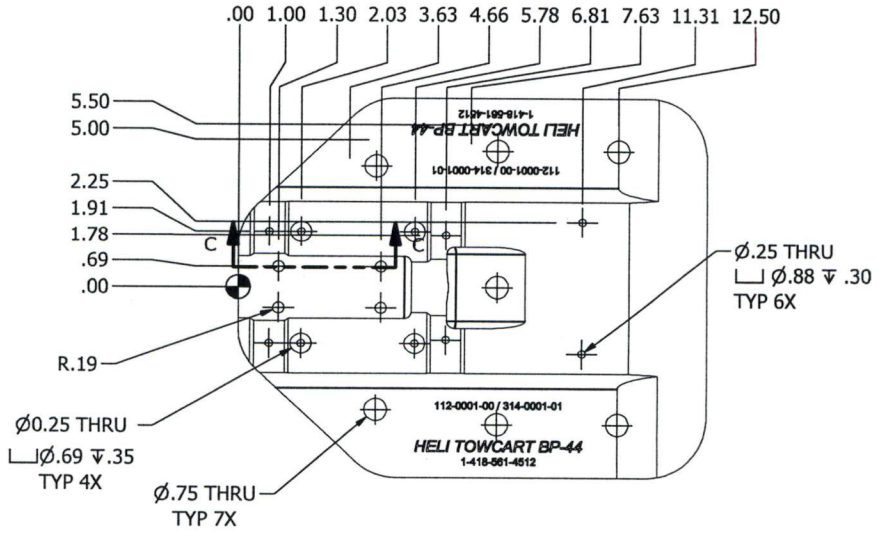
BOTTOM
SCALE 1 / 4



RIGHT
SCALE 1 / 4



SECTION C-C
SCALE 1 / 4



TOP
SCALE 1 / 4

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DASH NO.	NEXT ASSY	QTY PER ASY	MODEL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
LINEAR: TOLERANCES: X ±0.030, XXX ±0.010
ANGULAR TOLERANCES: ± 30'
ALL MACHINE SURFACE ✓
MATERIAL:
MATERIAL SPEC:
FINISH:
HEAT TREATMENT:
PROTECTION:
IDENTIFYING METHOD:

DRAWN: S. BERNIER	2009-10-22
DESIGNED: S. BERNIER	2009 10 22
CHECKED:	
STRESS:	
WEIGHT:	
APPROVED:	
APPROVED:	
APPROVED: M. ZOELA	2009 10 22

HELI TOW CART
VAMAT INC.
RED WAVE VICTORIA
5 NICHOLAS LANE, QC, CANADA, G7A 3S3
TEL: (418) 861-4512
FAX: (418) 834-2231
WWW.HELITOWCART.COM

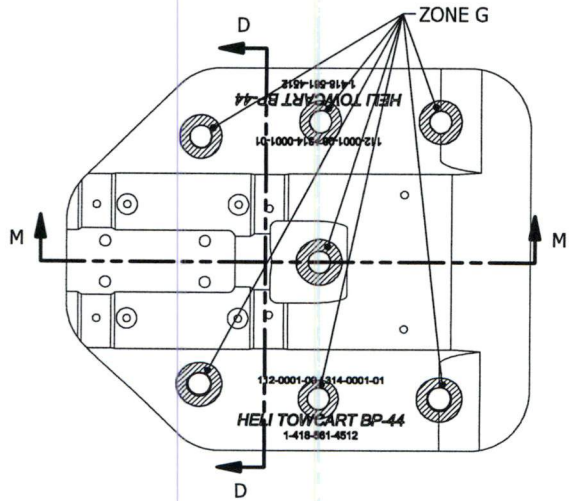
REARPAW
PAD STREAMLINE

CAGE CODE	SIZE	DRAWING NO.	REV
-	B	314-0001-01-B	B

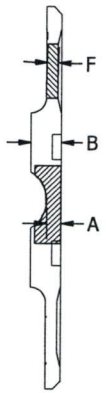
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314-0001-01-B

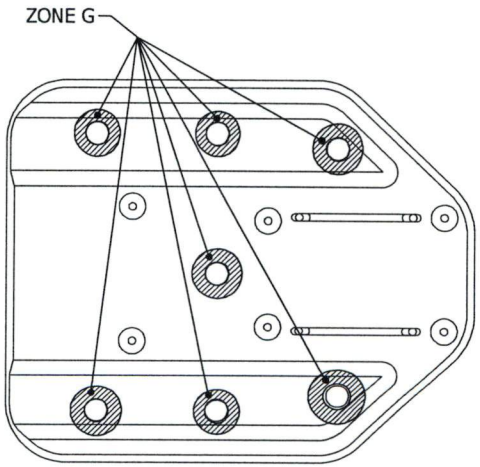
REVISIONS			
☐ REWORKABLE ☒ NONREWORKABLE ☐ NOTED ☐ NA			
ZONE	REV	DESCRIPTION	DR. & DATE
	A	ISSUE FOR PRODUCTION	
	B	ADDITION OF STREAMLINE PAD CONFIGURATION	

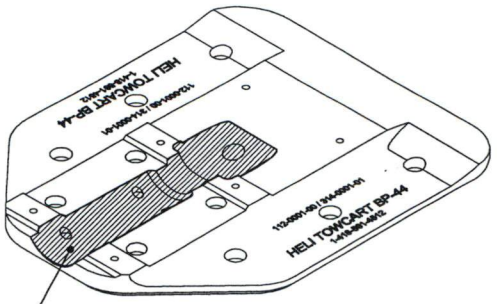


TOP
SCALE 1 / 4

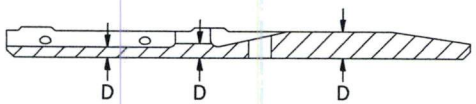


SECTION D-D
SCALE 1 / 4





ISO
SCALE 1 / 4



SECTION M-M
SCALE 1 / 4

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DASH NO.	NEXT ASSY	QTY PER ASY'T	MODEL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
LINEAR: .X ±0.030 / TOLERANCES: .XX ±0.010
ANGULAR TOLERANCES: ± 0.25°
ALL MACHINED SURFACE ✓
MATERIAL SPEC:
FINISH:
HEAT TREAT:
PROTECTIVE TREATMENT:
IDENTIFICATION METHOD:

DRAWN: S. BERNIER	2009-10-22
DESIGNED: S. BERNIER	2009 10 22
CHECKED:	
STRESS:	
WEIGHT:	
APPROVED:	
APPROVED:	
APPROVED: M. ZSELA	2009 10 22

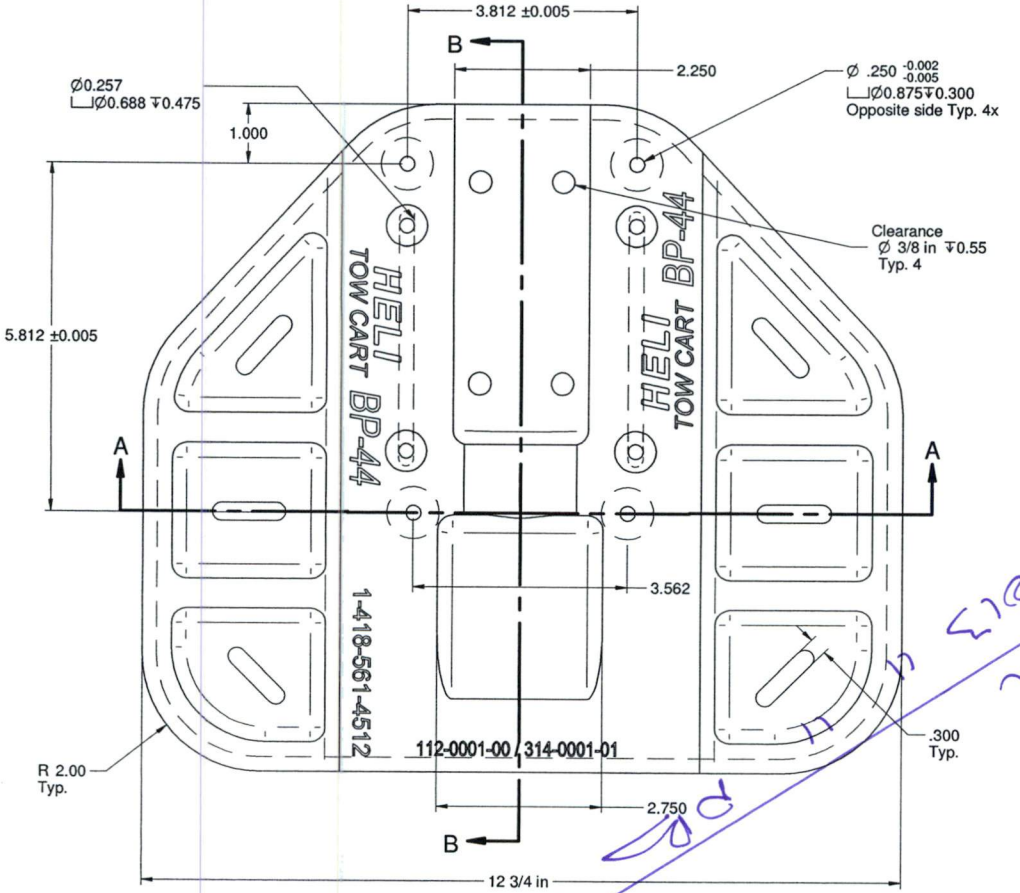
HELI TOW CART
YAMAHA INC.
2600 WATER VICTORIA
ST. NICOLAS LAVAL, QC.
CANADA G7A 3S3
TEL. (418) 561-4512
FAX. (418) 839 2231
WWW.HELITOWCART.COM

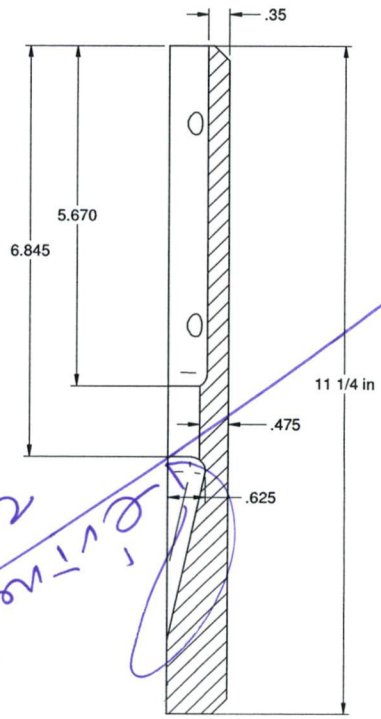
REARPAW
PAD STREAMLINE

CAGE CODE	SIZE	DRAWING No.	REV
	B	314-0001-01-B	B

SCALE: NTS | SHEET 3 OF 3

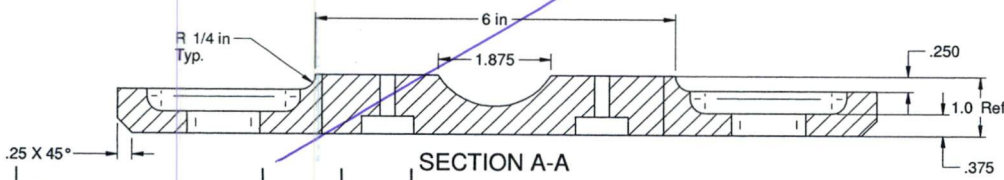
314-0001-01-B





SECTION B-B





SECTION A-A

Note :

- **Raw material specification :**
  UHMW Polyethylene Sheet (1" x 11 1/2" x 13")
  See specs sheet
- **Machined From File : VNR088.par**
- **Break corner 0.01 x 45 deg. Typ.**
- **If no indicated dimension, follow 3D file specs.**

Rev.	Description	Date	By
R03	Issue for production	24-04-06	G.L.
R02	Révision Générale	23-03-06	G.L.
R01	Initial issue	27-02-06	G.L.

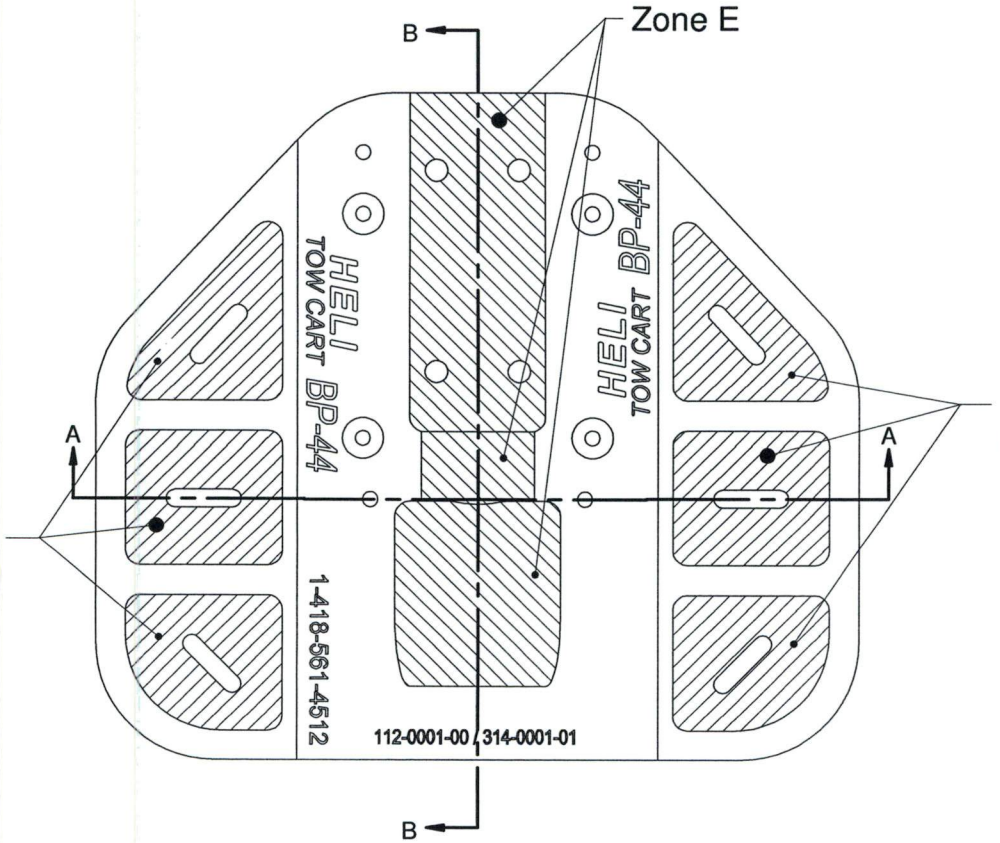
HELI TOW CART

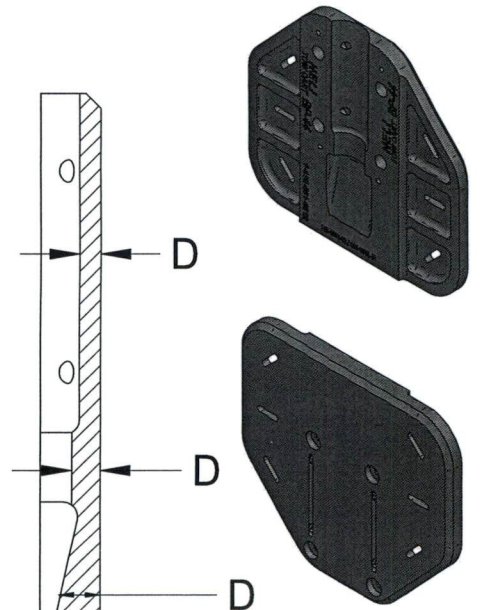
Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
Fax : (418) 836-2291
www.helitowcart.com

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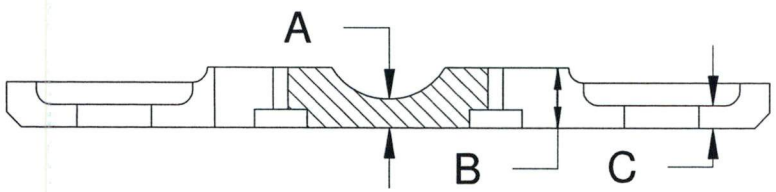
TOLERANCES	Titre / Title		Matériel / Material	
1/X ± 1/32" X.XX ± 0.010" X.XXX ± ANGLE ± 1° PROJECTION	Bearpaw - Pad		See Note	
	Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format : B	Échelle / Scale: 1 : 2	Page # 1 de 2
	Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR088		Rev.#: R03
	Approuvé par / Approved by: D. Bouchard	Date: (yyyy-mm-dd) 2006.04.27	Numéro de pièce / Part Number 314-0001-01-A		Rev.#:

314-0001-01-A





SECTION B-B



SECTION A-A

Rev.	Description	Date	By
R03	Issue for production	24-04-06	G.L.
R02	Révision Générale	23-03-06	G.L.
R01	Initial issue	27-02-06	G.L.

HELI TOW CART

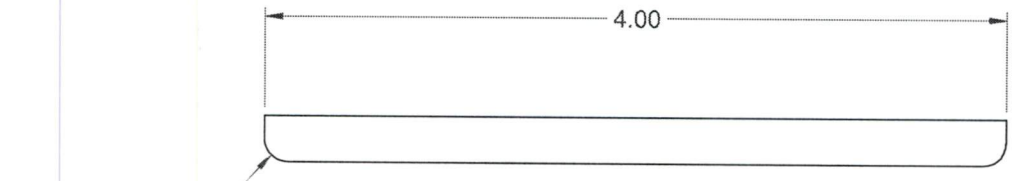
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TOLERANCES	Titre / Title: Bearpaw - Pad		Matériel / Material: See Note	
1/X ± 1/32" X.XX ± 0.010" X.XXX ± ANGLE ± 1°	Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format: B	Échelle / Scale: 1 : 2
PROJECTION	Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR088	Rev.#: R03
	Approuvé par / Approved by:	Date: (yyyy-mm-dd)	Numéro de pièce / Part Number: 314-0001-01-A	Rev.#:

Page #: 2 de 2

314-0001-01-A



Round corners
after asssembly
Typ.

Ø 1/4 in
Raw material

Note :
Raw material specification :
Stainless steel 304 annealed
Rod

Rev.	Description	Date	By
R1	Initial issue	03-08-06	G.L.

TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ± 0.005"
ANGLE ± 1°
PROJECTION:

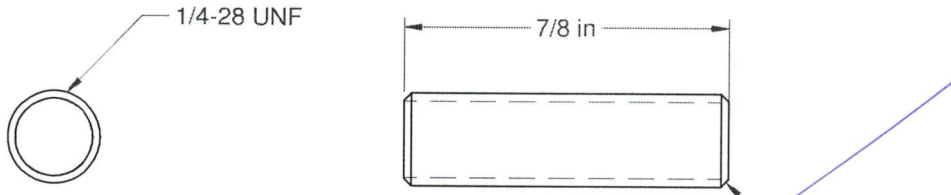
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Titre / Title			Matériel / Material:
Bearpaw - Iceblade			See Note
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format : A	Échelle / Scale: 1 : 1	Page #: 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR084		Rev.#: R1
Approuvé par / Approved by: D. Bouchard	Date: (yyyy-mm-dd) 06.03.10	Numéro de pièce / Part Number: 314-0002-15-A		Rev.#:

314-0002-15-A



Note :
Raw material specification :
Stainless steel 304 annealed
Threaded rod 1/4-28 UNF

R1	Initial issue	03-08-06	G.L.
Rev.	**Description**	**Date**	**By**

TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ± 0.005"
ANGLE ± 1°
PROJECTION:

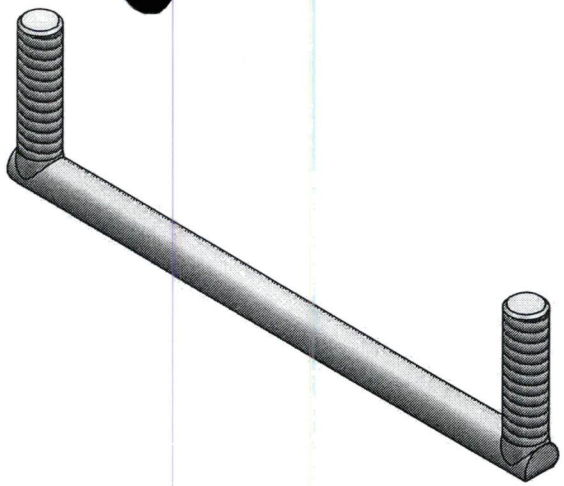
Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
Fax : (418) 836-2291
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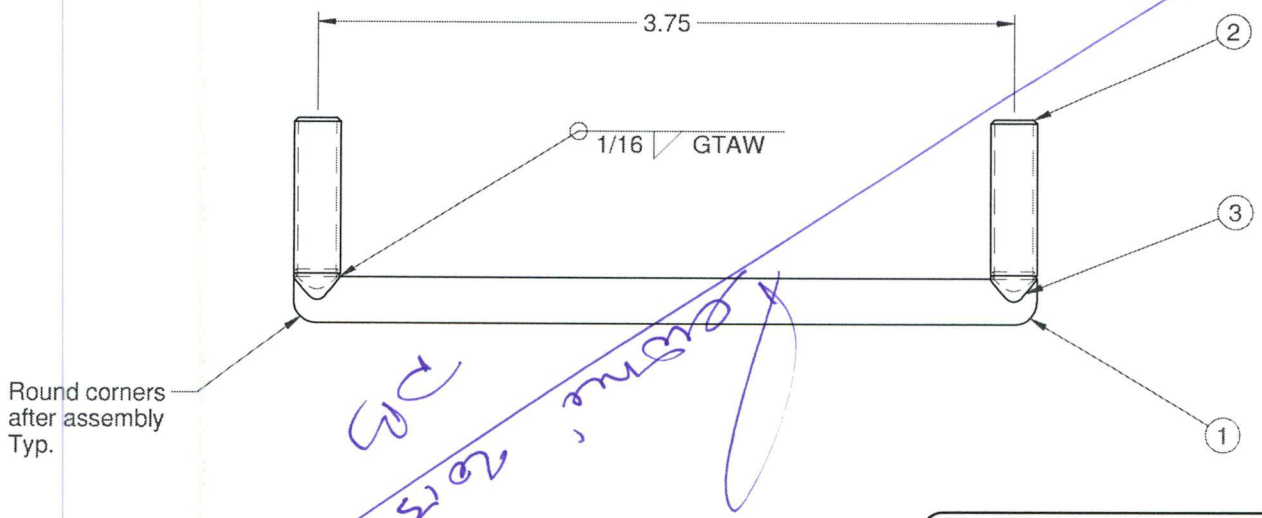
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Titre / Title: Bearpaw - Iceblade threaded rod			Matériel / Material: See Note	
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format : A	Échelle / Scale: N/A	Page #: 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR085		Rev.#: R1
Approuvé par / Approved by: D. Bourbeau	Date: (yyyy-mm-dd) 06.03.10	Numéro de pièce / Part Number: 314-0004-15-A		Rev.#:

314-0004-15-A

N°	Qty:	Description	D[illegible]#
1*	1	Bearpaw - Iceblade	314-0002-15-A
2*	2	Bearpaw - Iceblade threaded rod	314-0004-15-A
3*	2	Filler Material AWS A-5.9 / ASME SFA-5.9	MGSS308L





Rev.	Description	Date	By
R1	Initial issue	03-08-06	G.L.

TOLERANCES	
1/X	± 1/32"
X.XX	± 0.010"
X.XXX	± 0.005"
ANGLE	± 1°
PROJECTION	

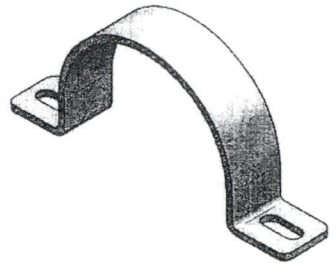
HELI TOW CART

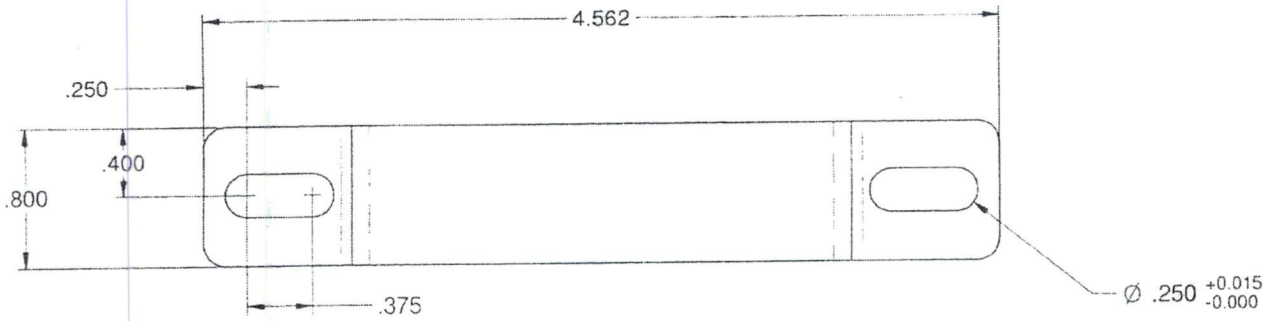
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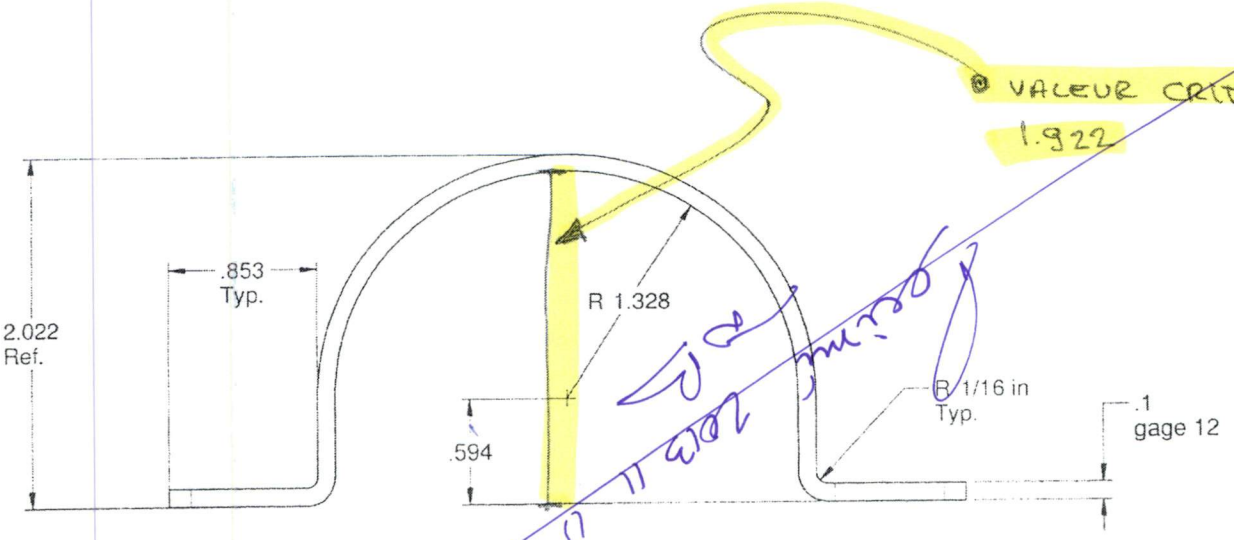
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Titre / Title			Matériel / Material:	
Bearpaw - Iceblade assembly				
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format : A	Échelle / Scale: N/A	Page #: 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR086		Rev.#: R1
Approuvé par / Approved by: D. Bouthillier	Date: (yyyy-mm-dd) 06.03.10	Numéro de pièce / Part Number: 314-0005-15-A		Rev.#:

314 - 0005 - 15 - A







VALEUR CRITIQUE
1.922

Attention

for future order

Note :
Raw material specification :
Stainless steel 304 annealed
Sheet gage 12

? Vérifié si rayon est réaliste en 12 ga.
Dernier batch LN081202 a été plié holes tel le pli sur la slotte de chaque côté et donc on a eu anneau trop haut.

Rev.	Description	Date	By
R04	.800 was 0.750 - Gage 12 was 14	31-07-06	G.L.
R03	Issue for production	04-04-06	G.L.

TOLERANCES	
	1/X ± 1/32"
	X.XX ± 0.010"
	X.XXX ±
	ANGLE ± 1°
PROJECTION:	

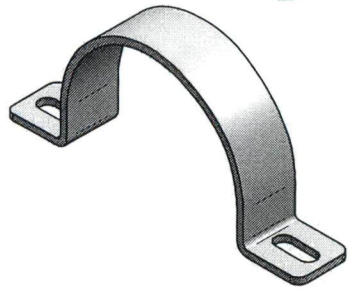
HELI TOW CART

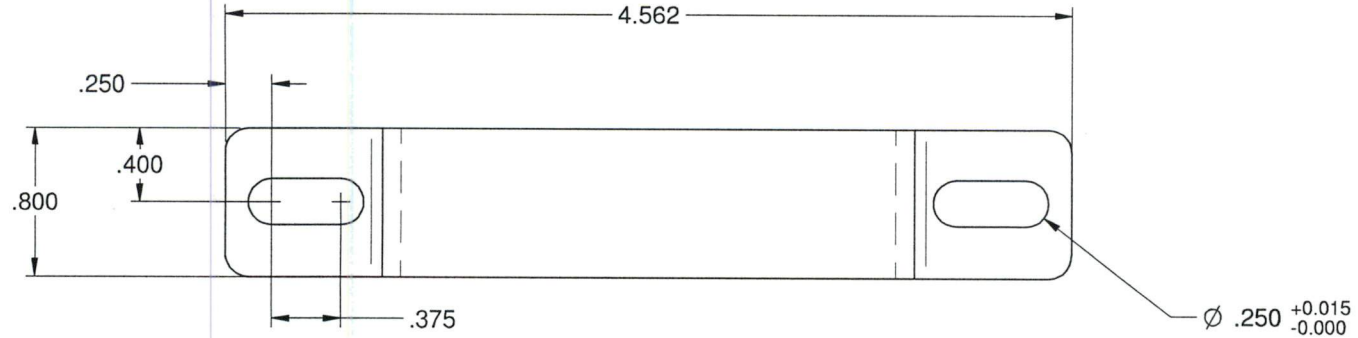
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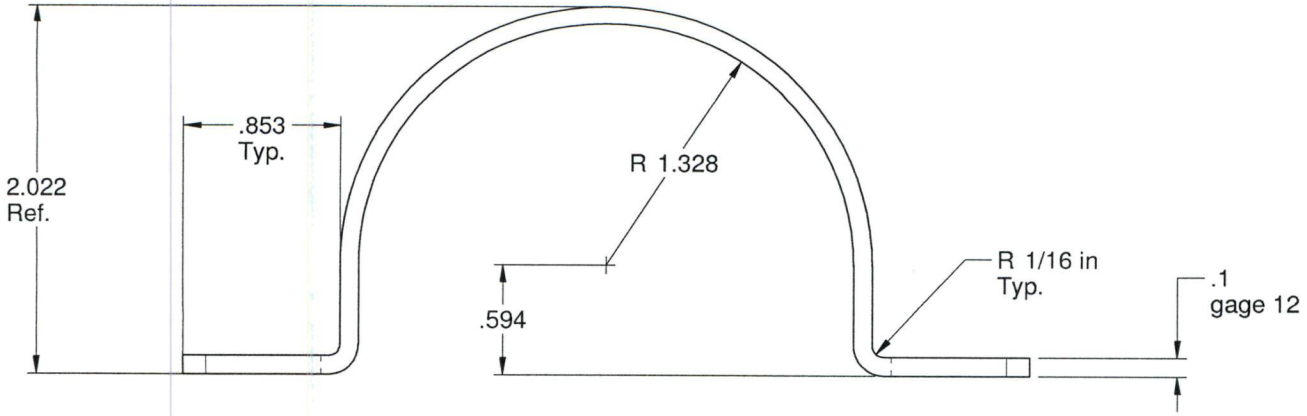
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Titre / Title			Matériel / Material:	
Bearpaw - U Shaped clip			See Note	
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format A	Échelle / Scale: N/A	Page # 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR087		Rev # R04
Approuvé par / Approved by: D. Bachan	Date: (yyyy-mm-dd) 06.08.01	Numéro de pièce / Part Number: 314-0006-15-B		Rev.#:

314-0006-15-B







Note :
Raw material specification :
Stainless steel 304 annealed
Sheet gage 12

Rev.	Description	Date	By
R04	.800 was 0.750 - Gage 12 was 14	31-07-06	G.L.
R03	Issue for production	04-04-06	G.L.

HELI TOW CART

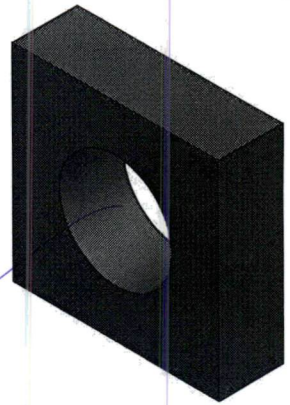
Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
Fax : (418) 836-2291
www.helitowcart.com

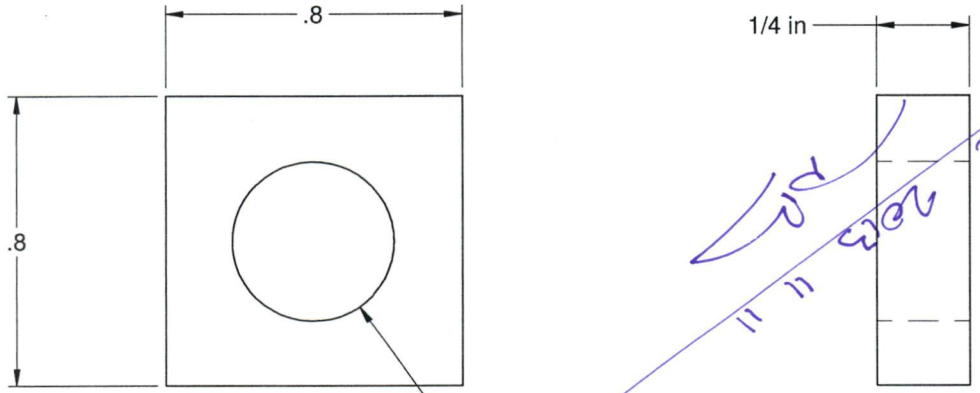
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TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ±
ANGLE ± 1°
PROJECTION:

Titre / Title: Bearpaw - U Shaped clip				Matériel / Material: See Note	
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format : A	Échelle / Scale: N/A	Page #: 1 de 1	
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR087		Rev.#: R04	
Approuvé par / Approved by: D. Barlan	Date: (yyyy-mm-dd) 06.08.01	Numéro de pièce / Part Number: 314-0006-15-B		Rev.#:	

314-0006-15-B





Rev.	Description	Date	By
R01	Initial issue	08-08-06	G.L.

TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ± 0.005"
ANGLE ± 1°
PROJECTION:

HELI TOW CART

Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
Fax : (418) 836-2291
www.helitowcart.com

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Titre / Title			Matériel / Material:
Bearpaw - Filler Block 1/4"			UHMW
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-08-08	Format : A	Échelle / Scale: 1 : 1	Page #: 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR099		Rev.#: R01
Approuvé par / Approved by: D. Tanguay	Date: (yyyy-mm-dd) 2006.09.07	Numéro de pièce / Part Number: 314-0012-01-A		Rev.#:

314.0012-01 A

BON DE LIVRAISON
C30568 -01

Plastique Polyfab inc.
Certifié ISO 9001:2000

1275, de la Jonquière
Québec (Québec) G1N 3X2
Téléphone: 418-682-0760
866-682-0760

7600, Rte Transcanadienne
St-Laurent (Québec) H4T 1A5
Téléphone: 514-738-6817
888-506-9600

Date vente: 11/01/2007
Page: 1
Vendeur: ERIC LACHANCE

Facturé à:
COMPTANT ÉRIC

Fillers.

Livré à:
HELITOWCART
Contact: M.BARBEAU
FAX:836-2291
TEL:563-0217

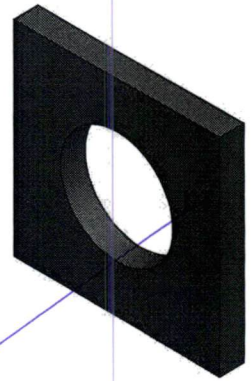
Votre #	Livraison par :	Case	# Commis
418-563-0217	APPELER POUR CUEILLETTE PSL		040

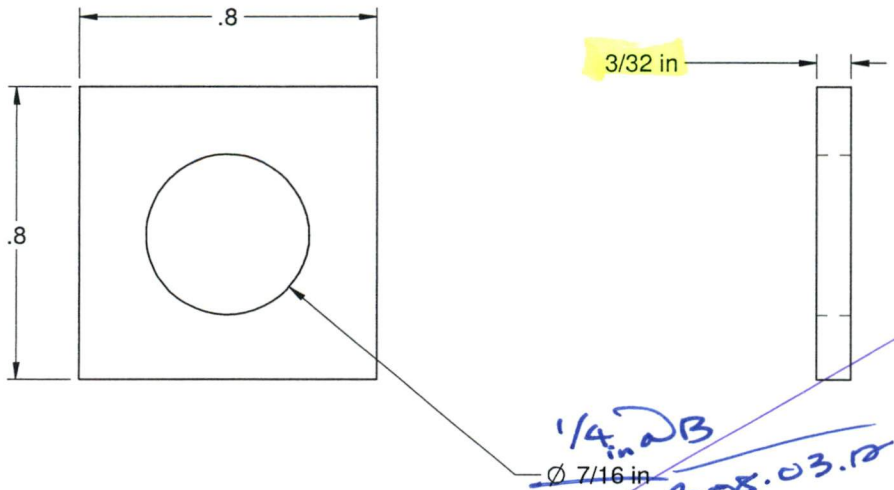
Code	Description	Qté Initiale	Déjà Livré	Balance	Cette Livraison	À Venir
COU2UHM	3/32" UHMNF.0648120 Coupé à .75 po X .75 po 314.0014.01A	120.00 MCX	0.00 MCX	120.00 MCX	120.00 MCX	
COU2UHM	1/8" UHMNF.1248120 Coupé à .75 po X .75 po 314.0015.01A	120.00 MCX	0.00 MCX	120.00 MCX	120.00 MCX	
COU2UHM	1/4" UHMNF.2548120 Coupé à .75 po X .75 po 314.0012.01A	280.00 MCX	0.00 MCX	280.00 MCX	280.00 MCX	

***Il est de la responsabilité du client, dans les 2 jours ouvrables suivant la livraison de sa commande, de s'assurer d'avoir bien reçu les items commandés. En cas de bris ou d'erreur, avertir votre vendeur afin de corriger la situation. Passé ce délai, aucun retour ne sera accepté.*
*** Polyfab se réserve le droit d'exiger des frais en cas d'annulation de commande ***

Préparé par : 40
Date : 16/01/07
Nombre de Colis: 1

COPIE CLIENT





1/4 in DB

2008.03.11

Le mar. 2013 11

R01	Initial Issue	06-09-06	G.L.
Rev.	**Description**	**Date**	**Par**

TOLERANCES

1/X ± 1/32"
X.XX ± 0.010"
X.XXX ± 0.005"
ANGLE ± 1°

PROJECTION:

AMEC USINAGE

AMEC Usinage inc.
110, des Grand-Lacs
Saint-Augustin (Québec)
Canada, G3A 2K1
Tél. : (418) 878-4133
Fax : (418) 878-2536
www.amecusinage.com

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Titre / Title			Matériel / Material:
Bearpaw - Filler Block 3/32"			UHMW
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-09-06	Format : A	Échelle / Scale: N/A	Page #: 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR103		Rev.#: R01
Approuvé par / Approved by: D. Barbeau	Date: (yyyy-mm-dd) 2006.09.07	Numéro de pièce / Part Number: 314-0014-01-A		Rev.#:

314-0014-01 A

BON DE LIVRAISON
C30568 -01

Plastique Polyfab inc.
Certifié ISO 9001:2000

1275, de la Jonquière
Québec (Québec) G1N 3X2
Téléphone: 418-682-0760
866-682-0760

7600, Rte Transcanadienne
St-Laurent (Québec) H4T 1A5
Téléphone: 514-738-6817
888-506-9600

Date vente: 11/01/2007
Page: 1
Vendeur: ERIC LACHANCE

Facturé à:
COMPTANT ÉRIC

Fillers.

Livré à:
HELITOWCART
Contact:
M.BARBEAU
FAX:836-2291
TEL:563-0217

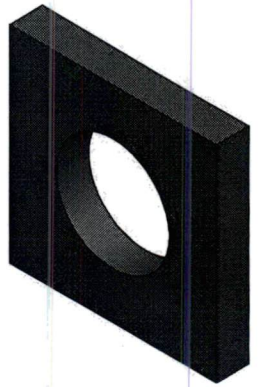
Votre #	Livraison par :	Case	# Commis
418-563-0217	APPELER POUR CUEILLETTE PSL		040

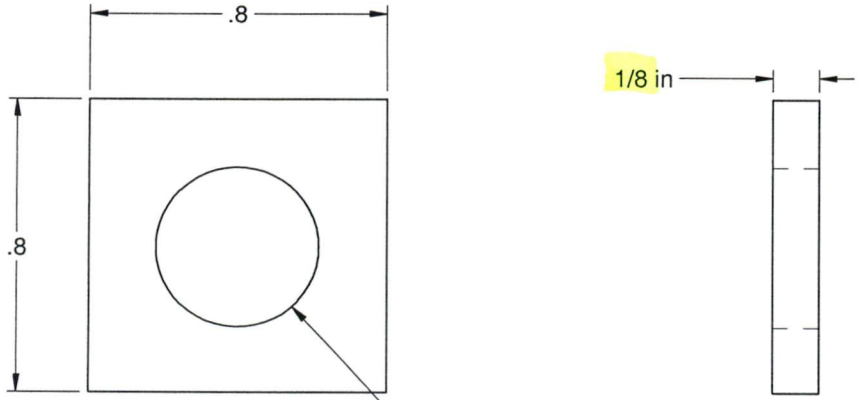
Code	Description	Qté Initiale	Déjà Livré	Balance	Cette Livraison	À Venir
COU2UHM	3/32" UHMNF.0648120 Coupé à .75 po X .75 po 314.0014.01 A	120.00 MCX	0.00 MCX	120.00 MCX	120.00 MCX	
COU2UHM	1/8" UHMNF.1248120 Coupé à .75 po X .75 po 314.0015.01 A	120.00 MCX	0.00 MCX	120.00 MCX	120.00 MCX	
COU2UHM	1/4" UHMNF.2548120 Coupé à .75 po X .75 po 314.0012.01 A	280.00 MCX	0.00 MCX	280.00 MCX	280.00 MCX	

***Il est de la responsabilité du client, dans les 2 jours ouvrables suivant la livraison de sa commande, de s'assurer d'avoir bien reçu les items commandés. En cas de bris ou d'erreur, avertir votre vendeur afin de corriger la situation. Passé ce délai, aucun retour ne sera accepté.*
*** Polyfab se réserve le droit d'exiger des frais en cas d'annulation de commande ***

Préparé par : 40
Date : 16/01/07
Nombre de Colis: 1

COPIE CLIENT





1/4 2B
2008.03.17

Révisé, 2013 11 07

Rev.	Description	Date	Par
R01	Initial issue	06-09-06	G.L.

TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ± 0.005"
ANGLE ± 1°
PROJECTION:

AMEC USINAGE

AMEC Usinage inc.
110, des Grand-Lacs
Saint-Augustin (Québec)
Canada, G3A 2K1
Tél. : (418) 878-4133
Fax : (418) 878-2536
www.amecusinage.com

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Titre / Title: Bearpaw - Filler Block 1/8"				Matériel / Material: UHMW	
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-09-06	Format: A	Échelle / Scale: N/A	Page #: 1 de 1	
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR104			Rev.#: R01
Approuvé par / Approved by: D. Boulay	Date: (yyyy-mm-dd) 2006.09.07	Numéro de pièce / Part Number: 314-0015-01-A			Rev.#:

314-0015-01-A

BON DE LIVRAISON
C30568 -01

Plastique Polyfab inc.

Certifié ISO 9001:2000

1275, de la Jonquière
Québec (Québec) G1N 3X2
Téléphone: 418-682-0760
866-682-0760

7600, Rte Transcanadienne
St-Laurent (Québec) H4T 1A5
Téléphone: 514-738-6817
888-506-9600

Date vente: 11/01/2007
Page: 1
Vendeur: ERIC LACHANCE

Facturé à:
COMPTANT ÉRIC



Livré à:
HELITOWCART
Contact:
M.BARBEAU
FAX:836-2291
TEL:563-0217

Votre #	Livraison par :	Case	# Commis
418-563-0217	APPELER POUR CUEILLETTE PSL		040

Code	Description	Qté Initiale	Déjà Livré	Balance	Cette Livraison	À Venir
COU2UHM	3/32" UHMNF.0648120 Coupé à .75 po X .75 po 314.0014.01 A	120.00 MCX	0.00 MCX	120.00 MCX	120.00 MCX	
COU2UHM	1/8" UHMNF.1248120 Coupé à .75 po X .75 po 314.0015.01 A	120.00 MCX	0.00 MCX	120.00 MCX	120.00 MCX	
COU2UHM	1/4" UHMNF.2548120 Coupé à .75 po X .75 po 314.0012.01 A	280.00 MCX	0.00 MCX	280.00 MCX	280.00 MCX	

***Il est de la responsabilité du client, dans les 2 jours ouvrables suivant la livraison de sa commande, de s'assurer d'avoir bien reçu les items commandés. En cas de bris ou d'erreur, avertir votre vendeur afin de corriger la situation. Passé ce délai, aucun retour ne sera accepté.*

*** Polyfab se réserve le droit d'exiger des frais en cas d'annulation de commande ***

Préparé par : 40

Date : 16/01/07

Nombre de Colis: 1

COPIE CLIENT

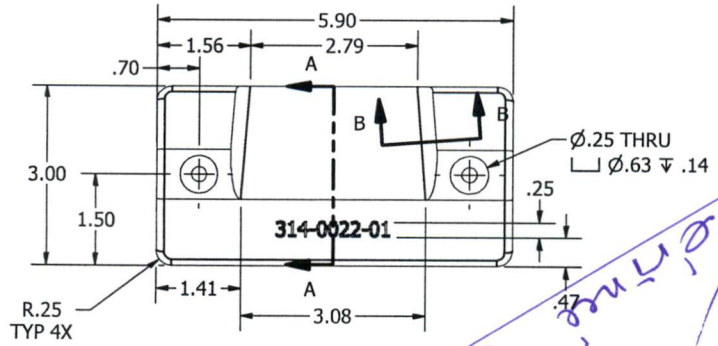
DWG NO	314-0022-01-A	SHT NO	1 OF 1

REVISIONS			
☐ REWORKABLE 2 NONREWORKABLE 3 NOTED 4 NA			
ZONE	REV	DESCRIPTION	DR. & DATE
	A	ISSUE FOR PRODUCTION	STRESS

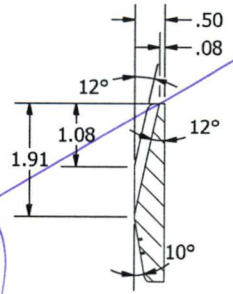
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994. DIMENSIONS AND TOLERANCING
2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX
3. BREAK CORNERS 0.050" MIN



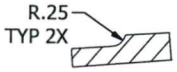
SIDE
SCALE 1 / 2



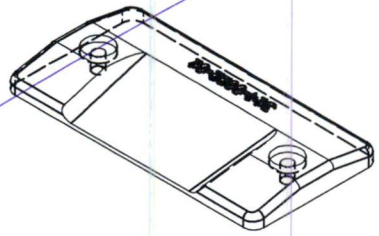
TOP
SCALE 1 / 2



SECTION A-A
SCALE 1 / 2



SECTION B-B
SCALE 1 / 2



ISO
SCALE 1 / 2

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SIZE
1	1	314 0022 01 A	BEARPAW FILLER BLOCK REAR	UHMW	1/2

UNLESS OTHERWISE SPECIFIED			
DIMENSIONS ARE IN INCHES			
TOLERANCES: FRACTIONAL ±	XX ±0.030		
	XXX ±0.010		
ANGULAR TOLERANCES: ± 30'			
ALL MACHINE SURFACES	√		
MATERIAL:			
MATERIAL SPEC:			
REF:			
HEAT TREAT:			
PROTECTIVE:			
IDENTIFICATION METHOD:			

DRAWN: S. BERNIER	2009-10-22
DESIGNED: S. BERNIER	2009 10 22
CHECKED:	
STRESS:	
WEIGHT:	
APPROVED:	
APPROVED: M. ZOELA	2009 10 22

HELI TOW CART

HANGAR INC.
4900 MARIE VICTORIN
ST NICOLAS ILLWS, QC,
CANADA G7A 3S8
T: (418) 831-7819
FAX: (418) 831-2220
WWW.HELITOWCART.COM

REARPAW
FILLER BLOCK REAR

CAGE CODE	SIZE	DRAWING No.	REV
-	B	314-0022-01-A	A

SCALE: NTS | CAD FILE: # 314-0022-01-A.dwg | SHEET: 1 OF 1

NEXT ASSY	QTY PER ACFT	WHERE

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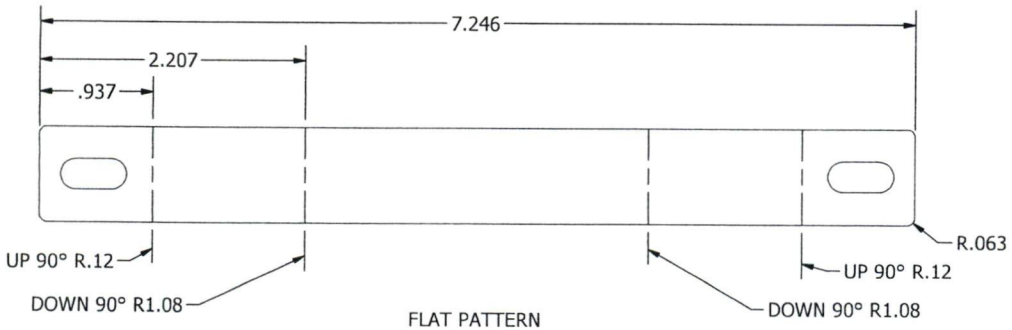
A. Balan
2010.01.06

314-0022-01-A

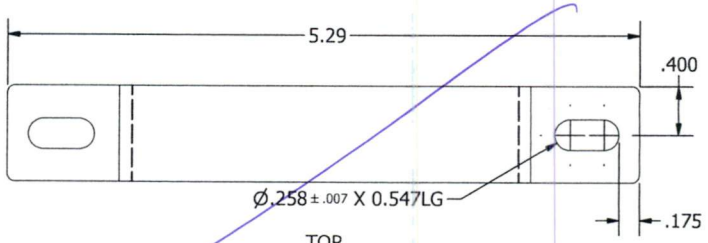
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994. DIMENSIONS AND TOLERANCING
2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX
3. FILL CLIENT INSPECTION FORM

REVISIONS				
1 REWORKABLE 2 NONREWORKABLE 3 NOTED 4 NA				
ZONE	REV	DESCRIPTION	DR. & DATE	STRESS
	A	ISSUE FOR PRODUCTION		

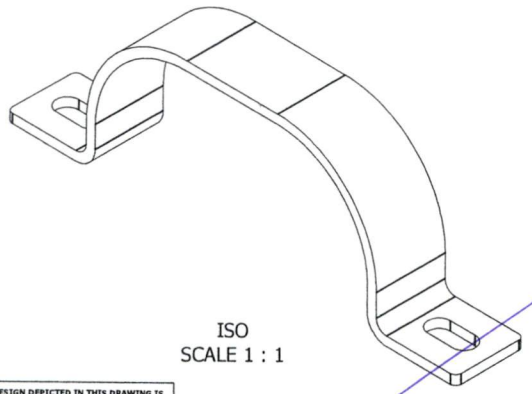
DWG No 314-0023-15-A — SHT No 1 OF 1



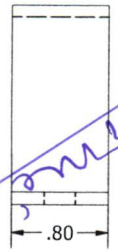
FLAT PATTERN
SCALE 1 : 1



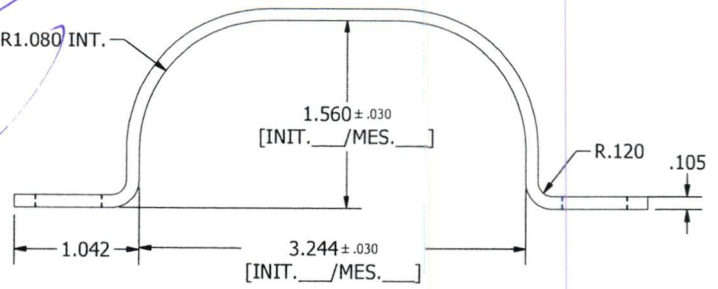
TOP
SCALE 1 : 1



ISO
SCALE 1 : 1



LEFT
SCALE 1 : 1



FRONT
SCALE 1 : 1

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SIZE
1	1	314 0023 15 A	BEARPAW U SHAPED CLIP REAR	STEEL	0.105

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES: .XX ±0.030, .XXX ±0.010
ANGULAR: ALL MACHINE SURFACE ✓
ALL MACHINE SURFACE ✓
MATERIAL:
MATERIAL SPEC:
SUPP:
HEAT TREAT:
PROTECTION:
IDENTIFYING METHOD:

DRAWN: S. BERNIER	15/04/2010	
DESIGNED: S. BERNIER	15/04/2010	
CHECKED:		
STRESS:		
AFIGHT:		
APPROVED:		
APPROVED: M. ZOTA	15/04/2010	

HELI TOW CART

BEARPAW
LOW U SHAPED CLIP

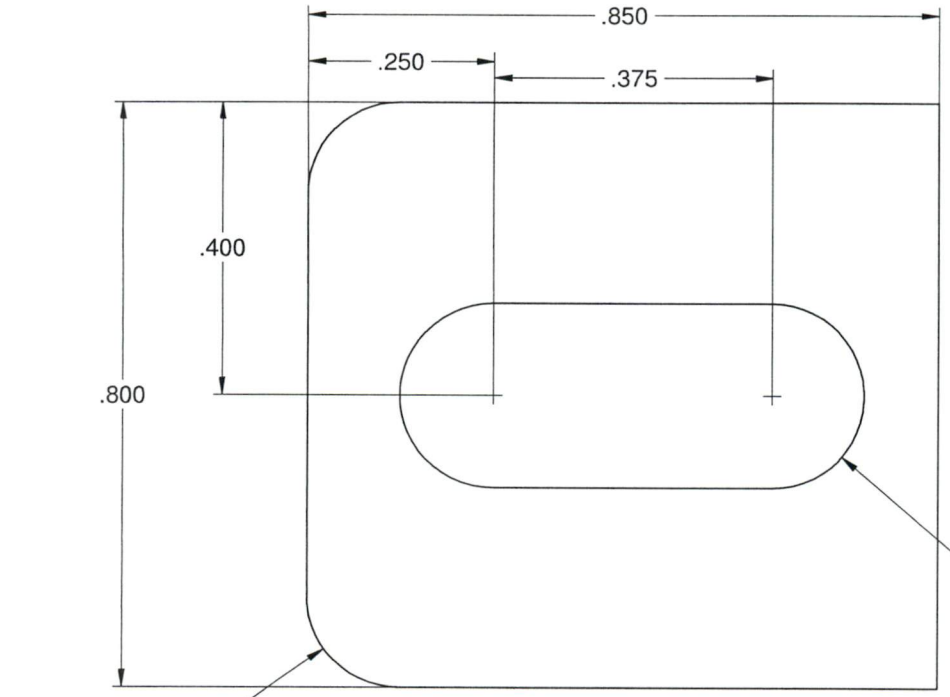
DASH NO.	NEXT ASSY	QTY PER ASSY	MODEL

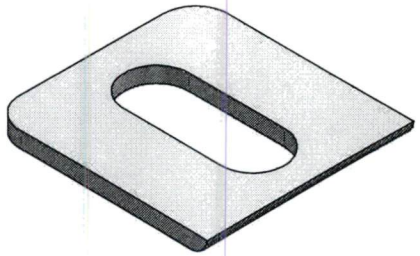
CAGE CODE: - | SIZE: B | DRAWING NO.: 314-0023-15-A | REV: A
SCALE: NTS | SHEET: 1 OF 1

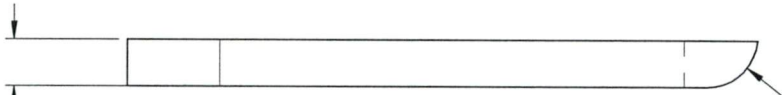
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314-0023-15-A

D. Bailey 2010.04.24







Note :
Raw material specification :
Stainless steel 304 annealed
Sheet gage 16

Rev.	Description	Date	By
R04	0.800 was 0.750 - 0.850 was 0.875	31-07-06	G.L.
R03	Issue for production	04-04-06	G.L.

HELI TOW CART

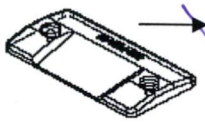
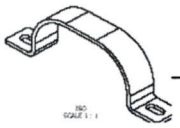
Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
Fax : (418) 836-2291
www.helitowcart.com

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TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ±
ANGLE ± 1°
PROJECTION:

Titre / Title: Bearpaw - Slotted clip support				Matériel / Material: SEE NOTE	
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format : A	Échelle / Scale: 4 : 1	Page #: 1 de 1	
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR089		Rev.#: R04	
Approuvé par / Approved by: D. Bolduc	Date: (yyyy-mm-dd) 06.08.01	Numéro de pièce / Part Number: 314-0007-15-B		Rev.#:	

314-0007-15 B

	Part Name	HTC P/N	Quantities per PAIR BP44	BP350	BP130
PADS	Pad /BP44	314-0001-01	2		
	Pad /BP350	314-0018-01		2	
	Pad /BP130	314-0024-01			2
HARDWARE	Plastic bag 8x10	na	2	2	2
	Rear Filler block/BP44	314-0022-01	2		
	U-Clip / BP44	314-0006-15	4		
	U-Clip / BP350	314-0019-15		6	
	U-Clip / BP130	314-0026-15			4
	Low U-Clip/ BP44	314-0023-15	2		
	Shrink on U-Clips	314-0021-01	6	6	6
	L-Clip/BP130	314-0025-15			4
	Iceblade	263-0005-15	4	8	8
	Slotted clip support	314-0007-15	8	12	12
	Bolt - AN4-14A	261-0001-17		12	12
	Bolt - AN4-15A	261-0002-17	4		
	Bolt - AN4-16A	261-0003-17	4		
	Nuts - MS20365-428 equiv: AN365-428A or MS21044N4	262-0001-17	20	28	28
	Washers - AN960-416	263-0001-17	40	40	40
	Filler block 1/4"	314-0012-01	4	12	
	Filler block 3/32"	314-0014-01	4		
	Filler block 1/8"	314-0015-01	4		12
DOCUMENTS	Plastic bag 9 x12	na	1	1	1
	Document - MDL/BP44	HTC-MDL-BP-R44-1000	1		
	Document - INST/BP44	314-0011-00	1		
	Document - MDL/BP350	HTC-MDL-BP-AS350-1000		1	
	Document - INST/BP350	314-0018-01-S		1	
	Document - MDL/BP130	HTC-MDL-BP-EC130-1000			1
	Document - INST/BP130	314-0031-00			1
	Can STC	na	1	1	1
	US STC	na	1	1	1
PACKAGING	Box / BP44 16.5x13x3.5"	na	1		
	Box / BP350 & BP130 24x21x3"	na		1	1
	Label /BP44	273-0001-04	1		
	Label /BP350 & BP130	273-0002-04		1	1

Nature of modifications: New format, added BP130

D. Bastien
2011 05 27

Dwg still active
for BP350 & BP130

No more used
for BP44

Nouvelles Versions reçues de ATS-AST nov 2013.

HELI TOW CART BY VANAIR

Master Document Li

Helitowcart

Robinson R44/R66 Helicopters
Installation of BearPaw Model BP44

Report: HTC-MDL-BP-R44-1000 (Rev D)

APPROVED BY: _____ DATE: 2013-08-28

Mirko Zgela
Design Approval Representative DAR #310

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HELI TOW CART BY VANAIR

Revision	Revision Date	Revision of Entry	Entered by
D	2013-08-28	Addition of Robinson R66 helicopter to the fleet eligibility list for BearPaw BP44 and product refinement.	R. Berthelot
C	2010 04 15	Addition of a rear U shaped clip in the streamline BearPaw Pad configuration	S. Bernier
B	2009 10 22	Introduction of new streamline BearPaw Pad configuration as alternate	S. Bernier
A	2006 09 07	Drawings are added to include the provision of shims during the installation.	N. Barbeau

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√ = RECEIVED FROM ATS-AST

HELI TOW CART BY VANAIR

1.0 MASTER DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-R44-1000	Compliance Plan - Robinson R44/R66 Helicopters -Installation of Bear Paw Model BP44	A	DAR 310	Aug 28, 2013
314-0011-00	BearPaw Model BP44 – Installation Instructions - R44/R66	E	DAR 310	Aug 9, 2013
ATS-0709-FTP-1000	R66 BearPaw Installation - Flight Test Plan/Report	NC	DAR 310	Aug 27, 2013
ATS-0709-TM-1000	Structural Substantiation – Addition of R66 Helicopter	NC	DAR 310	Aug 9, 2013
ATS-0709-EO-1000	Engineering Order – Installation of all BearPaw BP44 Configurations on R66	NC	DAR310	Aug 9, 2013
ATS-EO-BP-R44-1000	Engineering Order - BearPaw Streamline BP44	NC	DAR 310	Apr 15, 2010
HTC-TM-BP-R44-1000	Structural Substantiation - BearPaw Streamline BP44	NC	DAR 310	Oct 22, 2009
AAC-FTR-C-FBLO	Simple External Modification – Applicant's Flight Test Plan/Report	NC	DAR 310	Aug 4, 2006
AAC-STR-BP-R44-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP44	NC	DAR 310	July 4, 2006

2.0 MASTER DRAWINGS

Drawings #	Title	Revision Status	Approval by	Date
112-0001-00	BearPaw – Assembly	F	DAR 310	Aug 9, 2013
314-0001-01	BearPaw – Pad	C	DAR 310	Aug 9, 2013
314-0002-15	BearPaw – Iceblade	B	DAR 310	Aug 9, 2013
314-0004-15	BearPaw – Iceblade Threaded Rod	B	DAR 310	Aug 9, 2013
314-0005-15	BearPaw – Iceblade Assembly	B	DAR 310	Aug 9, 2013
314-0006-15	BearPaw – U-Shaped Clip	C	DAR 310	Aug 9, 2013
314-0012-01	Filler Block 1/4"	B	DAR 310	Aug 9, 2013
314-0014-01	Filler Block 1/16"	B	DAR 310	Aug 9, 2013
314-0015-01	Filler Block 1/8"	B	DAR 310	Aug 9, 2013
314-0022-01	Filler Block Rear	B	DAR 310	Aug 9, 2013
314-0023-15	BearPaw – Low U-Shaped Clip	B	DAR 310	Aug 9, 2013

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3.0 REFERENCE DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
314-0008-01	Material Properties - UHMW TIVAR	A	N/A	May 24, 2006
314-0009-01	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0017-05	Heat Shrink Specifications	A	N/A	Sept 6, 2006

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Annex A (BearPaw Assembly Drawing)
Annex B (BearPaw Pad Allowable Damage Drawing)

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INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw BP44 on the Robinson R44 and R66 helicopters..

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table 1:

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	877 A, Alphonse-Desrochers, St-Nicholas, Levis, Quebec, Canada, G7A 5K6	Tel:1 (418) 561-4512 Fax:1 (418) 836-4575 info@helitowcart.com

Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

Table 2 – Robinson Helicopter Effectivity

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0002, 0004 thru 9999, except 1140	Transport Canada: H-97 FAA: H11NM
R44 II	1140, 10001 and subsequent	Transport Canada: H-97 FAA: H11NM
R66	0002 and subsequent	Transport Canada: H-111 FAA: R00015LA

Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

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INSTALLATION

BearPaw Installation

Reference Documentation:

[1] Robinson R44 – Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
[2] Robinson R66 – Maintenance Manual & Instruction for Continued Airworthiness. RTR660.
[3] Annex A – BearPaw Assembly Drawings (112-0001-00)

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] or [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

Step 2: Ice Blade Installation (Optional)

- Install the two ice blades (314-0005-15) under BearPaw pad as per drawing 112-0001-00, ref [3];
- Insert washer (263-0001-17 / AN960-416) through threaded part of ice blade and secure with nut (262-0001-17 / AN365-428A).

Step 3: BearPaw Preparation

- Insert washers (263-0001-17 / AN960-416) through all six bolts: 2x(261-0001-17 / AN4-14A), 2x(261-0002-17 / AN4-15A) & 2x(261-0003-17 / AN4-16A) as per drawing 112-0001-00, ref [3];
- Insert all six bolts and washers through BearPaw pad;
- Insert rear filler block (314-0014-01) at aft of BearPaw;
- On each side at **front** of BearPaw, insert one 1/4" filler block (314-0012-01) and one 1/16" filler block (314-0014-01);
- On each side at **center** of BearPaw, insert one 1/8" filler block (314-0015-01) and one 1/16" filler block (314-0014-01);
- On each side at **aft** of BearPaw, insert **two** 1/16" filler blocks 2x(314-0014-01);

Note: Except for the rear filler block (314-0022-01) the use of filler blocks mentioned above may be increased, decreased, replaced or complemented by the use of washers (263-0001-17 / AN960-416). The use of bolts mentioned above may be replaced by longer or shorter AN4 bolts as required.

Step 4: BearPaw Installation

- Position the BearPaw under skid at the aft intersection with the cross tube with narrow edge pointing forward.
- Insert both U-Shaped Clips (314-0006-15) through bolts at front and center of BearPaw as per drawing 112-0001-00, ref [3];
- Insert the Low U-Shaped Clip (314-0023-15) through bolts at rear of BearPaw;
- Insert washer (263-0001-17 / AN960-416) & screw nuts (262-0001-17 / AN365-428A) for a tight fit. Maximum torque on nuts is 60 in.-lb.
- Adjust rear filler block (314-0022-01) position using slotted holes to remove all gap between rear filler block and skid.
- Ensure BearPaw holds strongly into position. If required, 1/16" filler blocks (314-0014-01) can be removed to increase tightening.

Step 5: Final Step

- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

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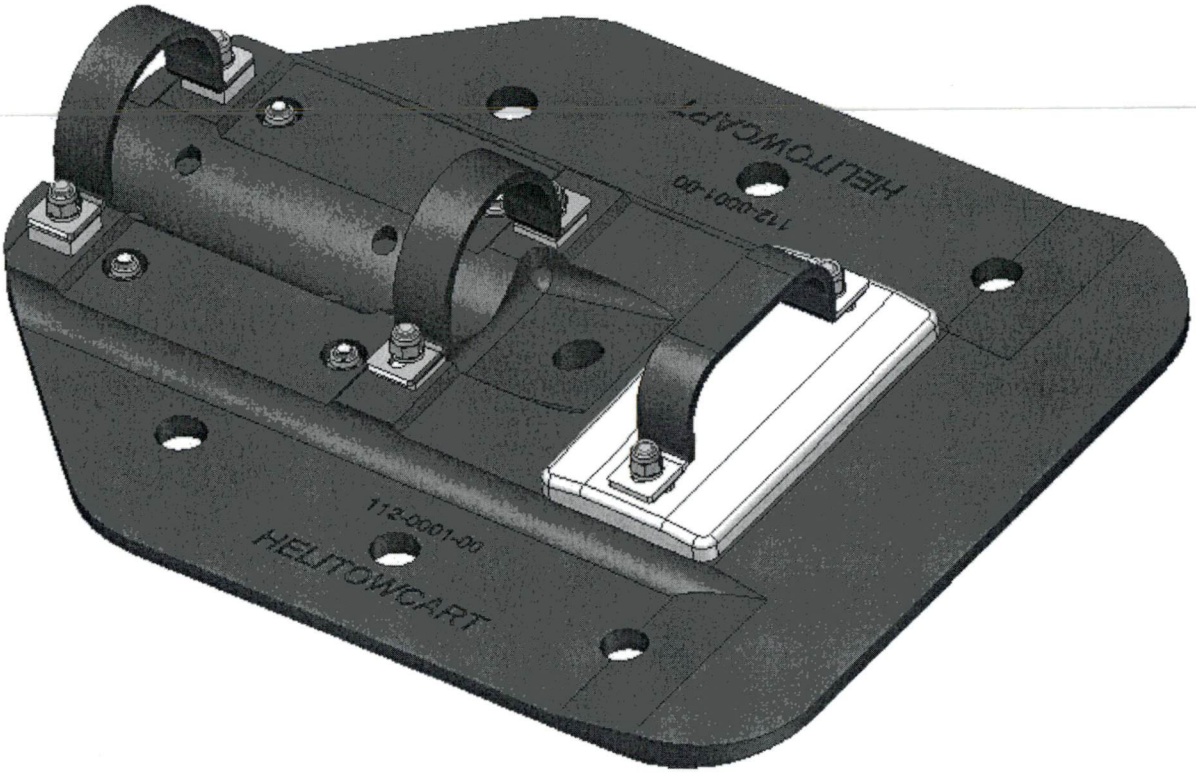


Figure 1 – BearPaw Model BP44/BP66 (112-0001-00)

BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] and [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);

Step 2: BearPaw Removal

- Remove nuts (262-0001-17 / AN365-428A), washers (263-0001-17 / AN960-416), U-Shaped Clips (314-0006-15) and Low U-Shaped Clip (314-0023-15);
- Remove BearPaw pad (314-0001-01);
- Inspect skid tubes to confirm serviceability;
- Re-install aft wearshoe with screws as per reference [1] or [2];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

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Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data – R44, R44 II and R66 helicopters

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	10.0 lbs 4.54 kg	0.0 in. (0.00 m)	0.0 lbs-in (0.0 kg-m)	128.5 in (3.26 m)	1285 lbs-in (14.8 kg-m)

Parts Lists

The Helitowcart BearPaw detailed part list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Name
BearPaw Model BP44	**1**	**112-0001-00**	**BearPaw Assembly**
BearPaw pad	1	314-0001-01	BearPaw – Pad
Filler blocks rear	1	314-0022-01	BearPaw – Filler block Rear
Filler blocks 1/4"	2	314-0012-01	BearPaw – Filler block 1/4"
U-Shaped Clips	2	314-0006-15	BearPaw – U Shaped Clips
Filler blocks 1/16"	8	314-0014-01	BearPaw – Filler block 1/16"
Filler blocks 1/8"	2	314-0015-01	BearPaw – Filler block 1/8"
Low U-Shaped Clips	1	314-0023-15	BearPaw – Low U Shaped Clips
Washers	12	263-0001-17	Washer (AN960-416)
Nuts	6	262-0001-17	Nylon Nut (AN365-428A)
Bolts	2	261-0001-17	Hex Bolt (AN4-14A).
Bolts	2	261-0002-17	Hex Bolt (AN4-15A).
Bolts	2	261-0003-17	Hex Bolt (AN4-16A).
IceBlade Option Model OIB	**2**	**314-0005-15**	**IceBlade Assembly**
Nuts	4	262-0001-17	Nylon Nut (AN365-428A)
Washers	4	263-0001-17	Washer (AN960-416)

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INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured;
- Check that BearPaws are free from visible damage;
- If damage is found, verify allowable damage according to:
  Table 5 – Tolerances for Cracks & Wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01 page 3 of 3).

Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 300 flying hours or yearly whichever comes first;
- The Helitowcart BearPaw can be inspected concurrently with the R44/R66 landing gear inspection;
- Recommended tolerance for performance of inspection is +/- 10% of the 300 hours period.;
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

300 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal";
- Inspect all parts for damage & wear. See table & figure below for allowable damage;
- Replace all damaged parts;
- Replace parts worn beyond the tolerances indicated below;
- See Tolerances for cracks & wear:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01 page 3 of 3).

Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,050	
D	N/A	N/A	No cracks allowed in zone D
E	N/A	N/A	No cracks allowed in zone E

Overhaul Requirements

- Not applicable for the designated application of this device.

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REVISIONS & APPROVAL

Revisions

Date	Rev	Nature of Revisions
August 09, 2013	E	Addition of Robinson R66 helicopter, removal of pocket version of the BearPaw and removal of revision letters from part numbers.
April 15, 2010	D	Addition of a rear U shaped clip in the Streamline BearPaw Pad configuration.
October 22, 2009	C	Introduction of new streamline BearPaw Pad configuration as alternate.
September 7, 2006	B	- Added filler blocks and heat shrink to product list. - Modified recommended bolt models (lengthened) - Revised inspection requirements from 100 hour to 300 hour intervals. - Identification of the IceBlade assembly as an optional feature.
June 12, 2006	A	Initial issue

Approval

Internal Approval :		
Helitowcart inc.	Lucien Barbeau, President	August 09, 2013
External Approval :		
Transport Canada	Mirko Zgela, DAR #310	August 09, 2013

Annex A

See: BearPaw Assembly, drawing no. 112-0001-00.

Annex B

See: BearPaw Allowable Damage Drawing, drawing no. 314-0001-01 page 3 of 3.

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Annex A
BearPaw Assembly, Drawing no. 112-0001-00

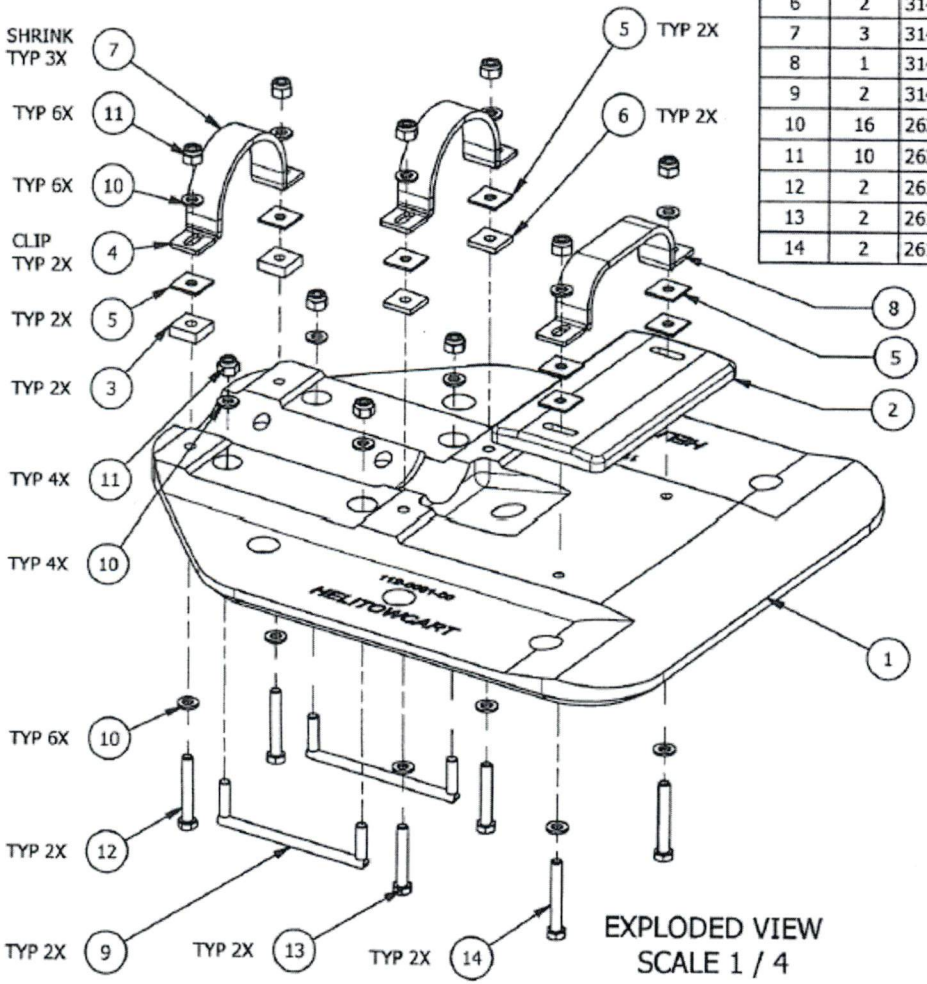
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NOTES:

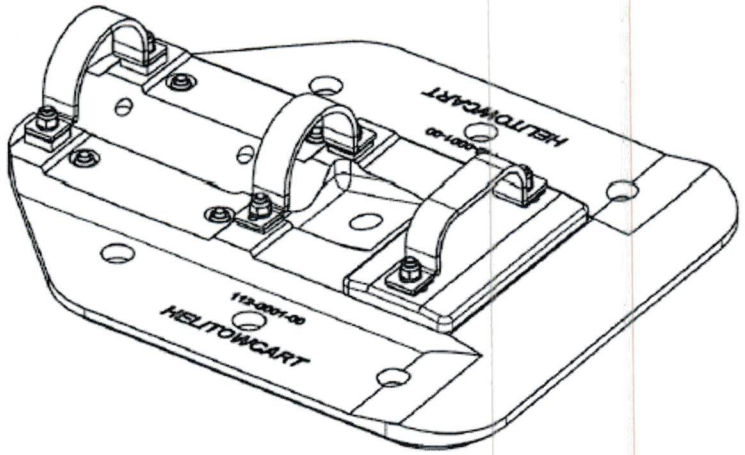
1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	8	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	314-0016-05	BEARPAW - SHRINK (FIT-221)	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	STEEL	---	---
10	16	263-0001-17	WASHER (AN960-416)	STEEL	---	1/4
11	10	262-0001-17	NYLON NUT (AN365-428A)	STEEL	---	1/4
12	2	261-0002-17	HEX BOLT (AN4-15A)	STEEL	QQ-P-416A	1/4-28
13	2	261-0001-17	HEX BOLT (AN4-14A)	STEEL	---	---
14	2	261-0003-17	HEX BOLT (AN4-16A)	STEEL	QQ-P-416A	1/4-28



EXPLODED VIEW
SCALE 1 / 4



ASSEMBLED
SCALE 1 / 4

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE	M. ZGELA	2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

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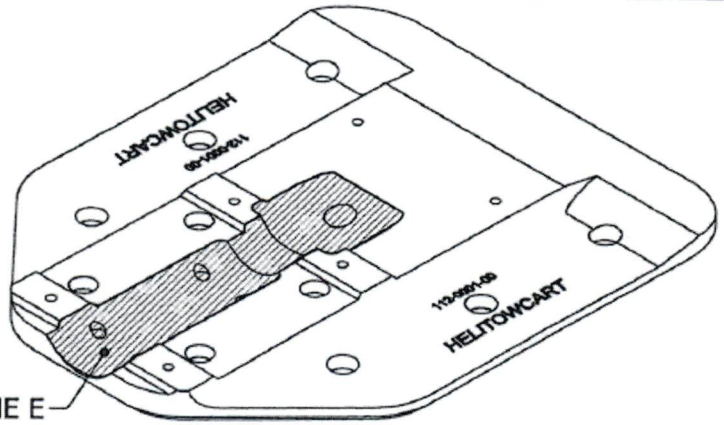
DRAFTED BY: G. LAPOINTE — DATE: 2006/04/25
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006/04/25
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

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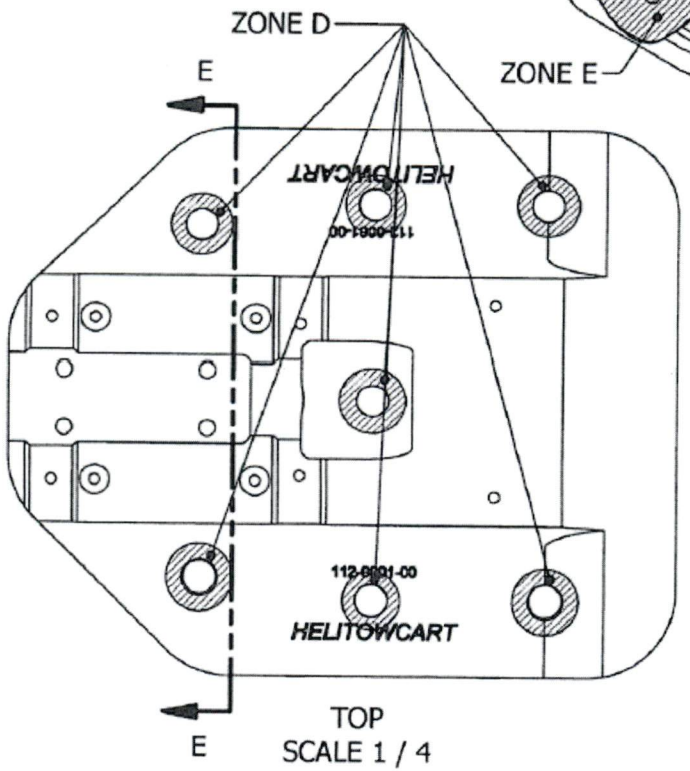
DEFINITION: BEARPAW ASSEMBLY
DRAWING NUMBER: 112-0001-00
REV: F
SHEET: 1 OF 1

Annex B
BearPaw Allowable Damage Drawing, Drawing no. 314-0001-01-B, Page 3 of 3

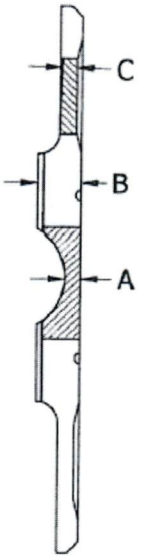
Tel: 1-418-561-4512, Fax: 1-418-836-4575, 877 A Alphonse-Desrochers, St-Nicolas, Levis, QC, Canada, G7A 5K6.
www.helitowcart.com info@helitowcart.com



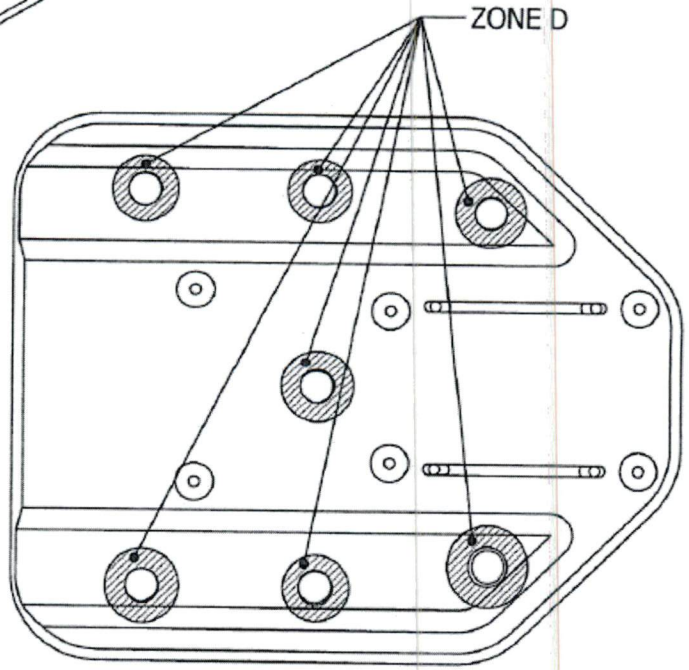
ISO
SCALE 1 / 4



TOP
SCALE 1 / 4



SECTION E-E
SCALE 1 / 4



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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24
CHECKED BY:	DATE:
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE A
	SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW PAD

DRAWING NUMBER: 314-0001-01

REV: C

Aviatech TECHNICAL SERVICES Inc.
2595 rue Saint-Olivier
Trois-Rivières, Québec
G9A 4G1

Engineering Order

Title: Installation of all BearPaw BP44 Configurations on R66 helicopters	
EO Number: ATS-0709-EO-1000 Rev NC	**Date issued:** August 09, 2013
Customer: Helitowcart	**Project number:** A2007-09

A/C INFORMATION

A/C Effectivity: R44, R44 II & R66	**Registration / Serial#:** N/A

SIGNATURE

Prepared by:	Mechanical:	Electrical:	Verified:	Approved:
R. Berthelot (OIQ #5033095)	R. Berthelot (OIQ #5033095)	N/A	J.-F. Lemire (OIQ #141774)	Mirko Zgela (DAR #310)

REFERENCE DOCUMENTS

[1] AAC-STR-BP-R44-1000, "Structural Substantiation – Helitowcart Inc. BearPaw Model BP44", Rev NC dated July 4, 2006.

[2] HTC-TM-BP-R44-1000, "Structural Substantiation – BearPaw Streamline BP44", Rev NC dated October 22, 2009.

[3] ATS-0709-TM-1000, "Structural Substantiation – Addition of R66 Helicopter", Rev NC dated August 09, 2013.

1. Background

Helitowcart has improved its BearPaw design over the years by passing from a pocket configuration with two clips to a longer streamline configuration with two clips and then with three clips. These design changes are shown on Figure 1.

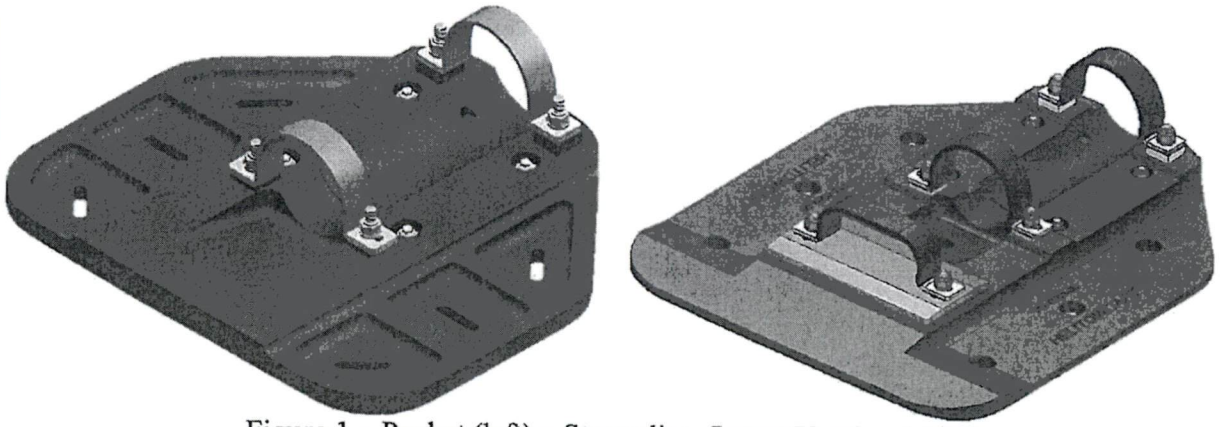


Figure 1 – Pocket (left) – Streamline, Latest Version (right)

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2595 rue Saint-Olivier
Trois-Rivières, Québec
G9A 4G1

2. Structural Compliance

Structural compliance of BearPaw BP44 installation on the R44 and R44 II helicopters was demonstrated in reference [1] for the pocket configuration and in reference [2] for the streamline configuration with two clips.

Structural compliance of BearPaw BP44 installation on the R66 helicopter was demonstrated in reference [3] for the streamline configuration with two clips (the third clip was neglected). This two clip configuration is the most critical since the streamline configuration with three clips and the pocket configurations are stronger.

Therefore, all BearPaw configurations comply with FAR 27 structural requirements and can therefore be installed on the R66 helicopter.

3. Installation on the R66 Helicopter

Helicopter skids are identical for the R44, R44 II and R66 helicopters. Therefore, installation of BearPaw BP44 on the R66 helicopter is to be performed with the original installation instructions provided with the BearPaw at the time of acquisition (Table 1).

Table 1 – Installation Instructions for all BearPaw Configurations

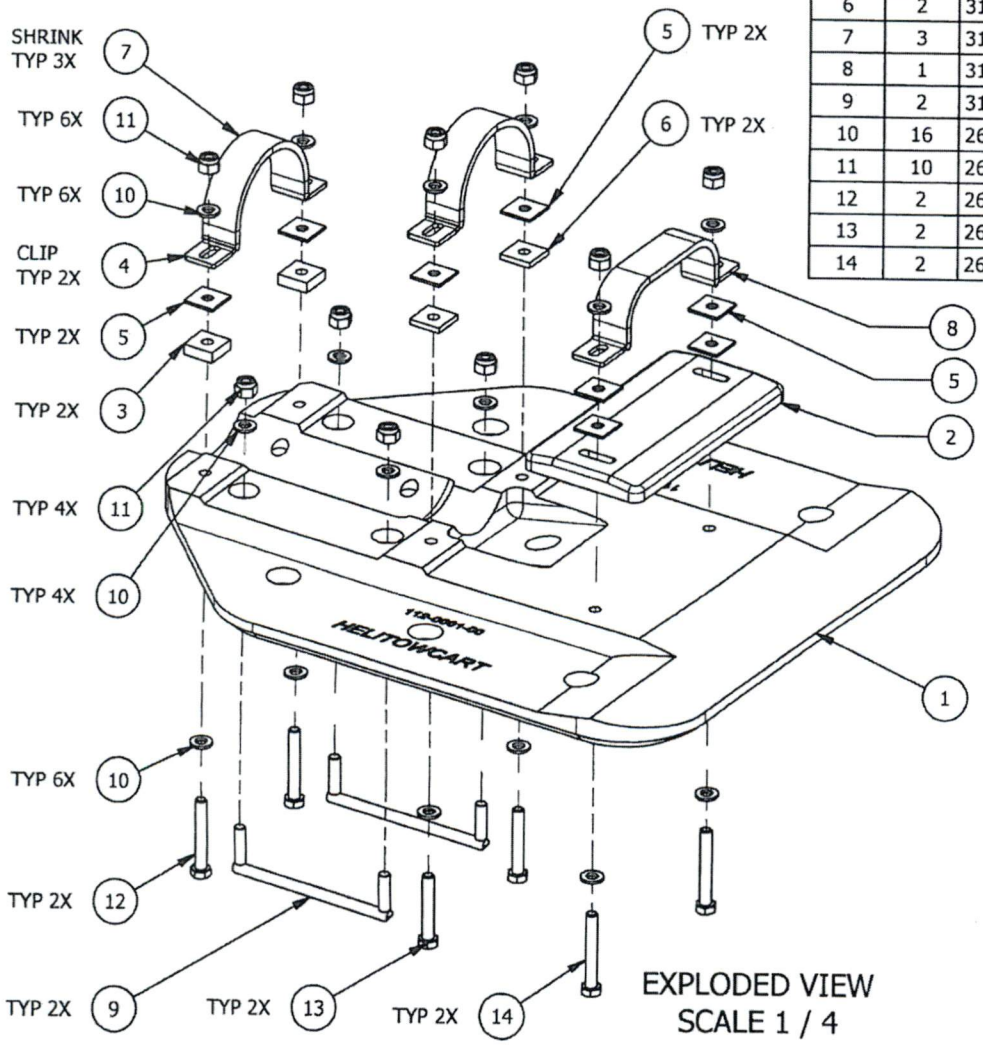
Drawing	Part Number	Description	Installation Instructions
VNR083 Rev R05	112-0001-00-C	Pocket – Two Clips	314-0011-00-B Rev B
112-0001-00-D Rev D	112-0001-00-D	Streamline – Two Clips	314-0011-00-A Rev C
112-0001-00-E Rev E	112-0001-00-E	Streamline – Three Clips	314-0011-00 Rev D
112-0001-00 Rev F	112-0001-00	Streamline – Latest Version	314-0011-00 Rev E

NOTES:

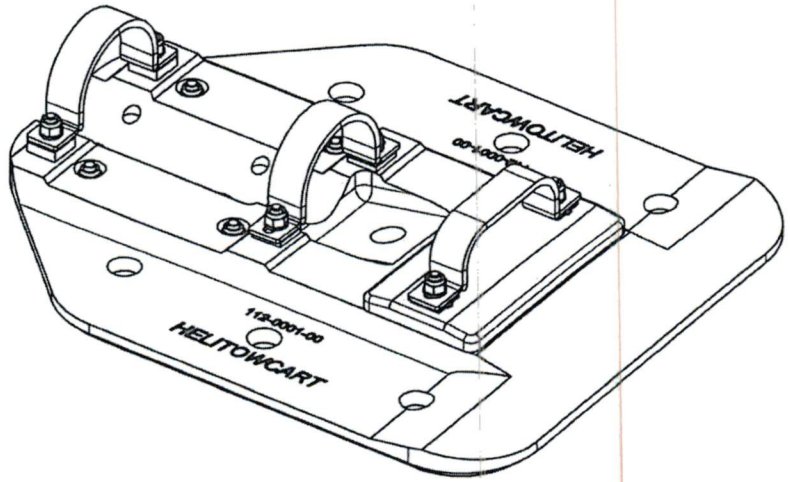
1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	8	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	314-0016-05	BEARPAW - SHRINK (FIT-221)	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	STEEL	---	---
10	16	263-0001-17	WASHER (AN960-416)	STEEL	---	1/4
11	10	262-0001-17	NYLON NUT (AN365-428A)	STEEL	---	1/4
12	2	261-0002-17	HEX BOLT (AN4-15A)	STEEL	QQ-P-416A	1/4-28
13	2	261-0001-17	HEX BOLT (AN4-14A)	STEEL	---	---
14	2	261-0003-17	HEX BOLT (AN4-16A)	STEEL	QQ-P-416A	1/4-28



EXPLODED VIEW
SCALE 1 / 4



ASSEMBLED
SCALE 1 / 4

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE	M. ZGELA	2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006/04/25

CHECKED BY: — DATE:

APPROVED TCCA BY: M. ZGELA — DATE: 2006/04/25

IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°

UNITS: INCH

SIZE: A

SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ASSEMBLY

DRAWING NUMBER: 112-0001-00

REV: F

SHEET: 1 OF 1

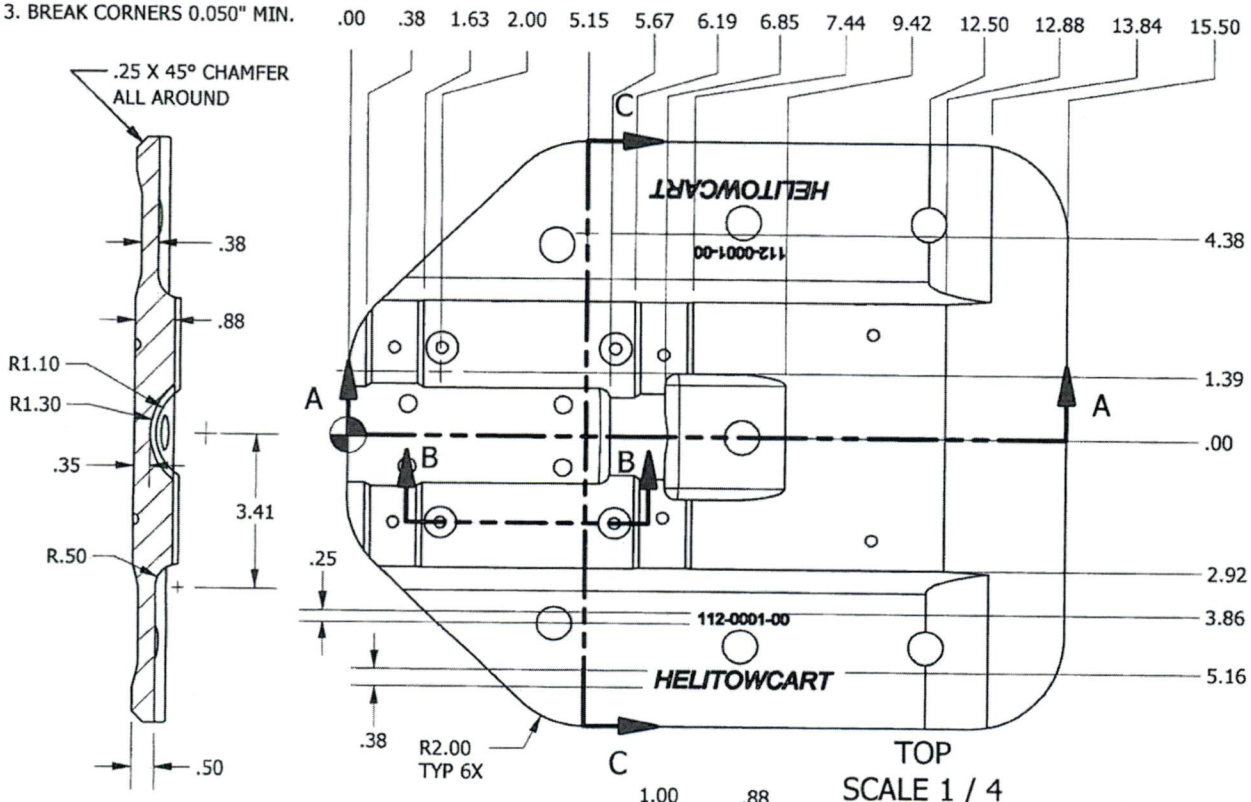
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX.

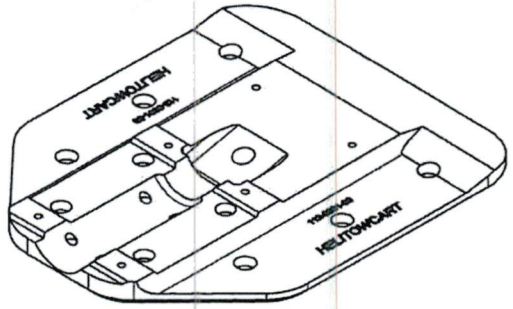
3. BREAK CORNERS 0.050" MIN.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
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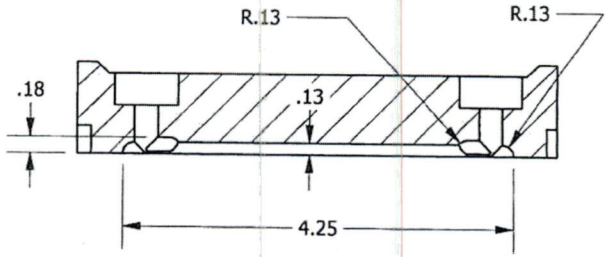


SECTION C-C
SCALE 1 / 4

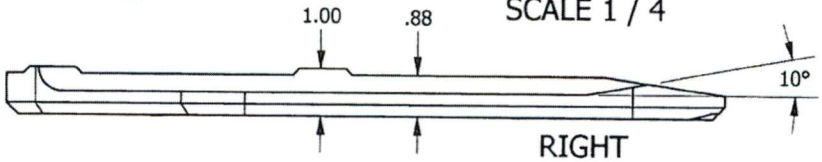
TOP
SCALE 1 / 4



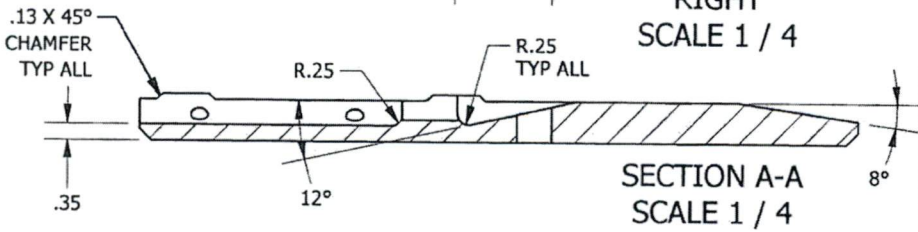
ISO
SCALE 1 / 6



SECTION B-B
SCALE 1 / 2



RIGHT
SCALE 1 / 4



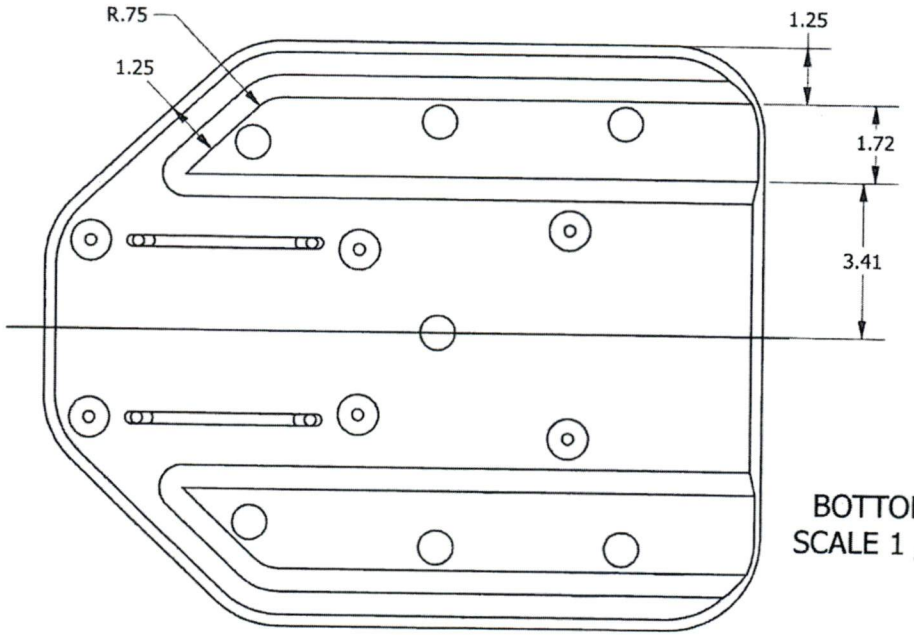
SECTION A-A
SCALE 1 / 4

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	ADDITION OF STREAMLINE PAD CONFIGURATION	S. BERNIER	M. ZGELA	2009-10-22
C	MODIFIED ENGRAVING, CHANGED ZONES FOR DAMAGE TOLERANCE	R.B.R.	M. ZGELA	2013-08-09

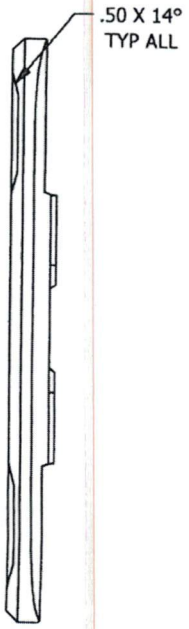
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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°	UNITS: INCH	DRAWING NUMBER: 314-0001-01 REV: C
	SIZE: A	
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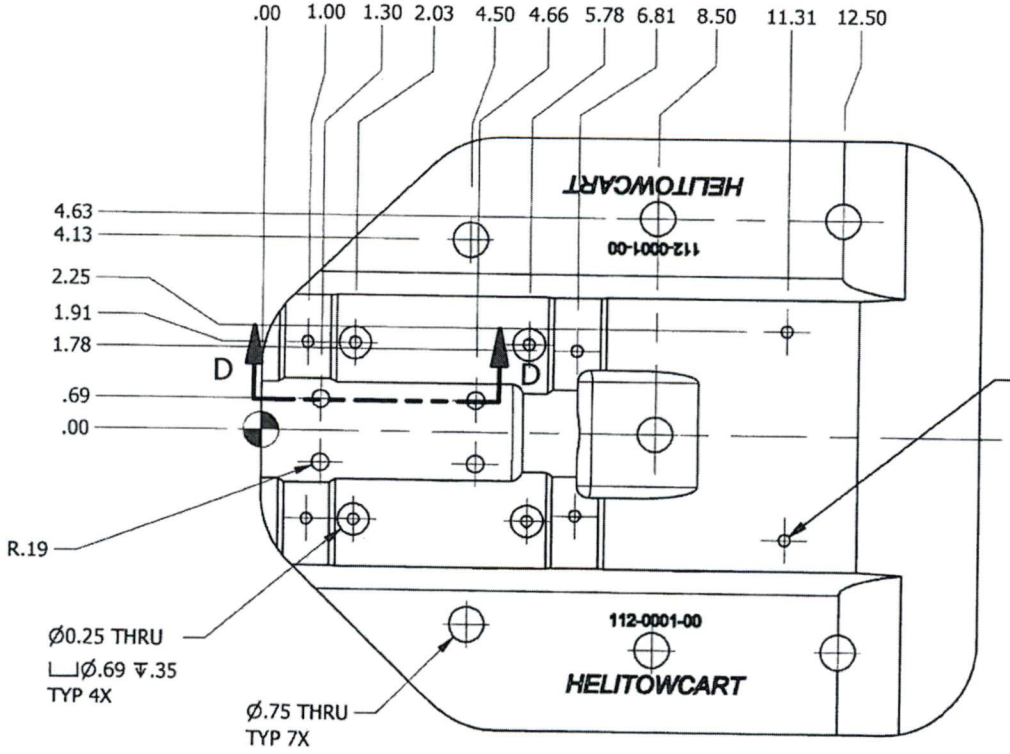
Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com



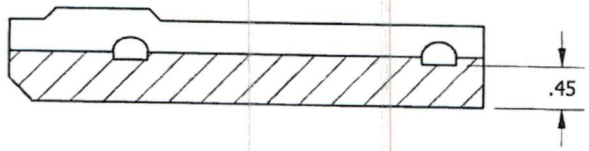
BOTTOM
SCALE 1 / 4



REAR
SCALE 1 / 4



TOP
SCALE 1 / 4



SECTION D-D
SCALE 1 / 2

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CHECKED BY:	DATE:
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A
	SCALE: N/A

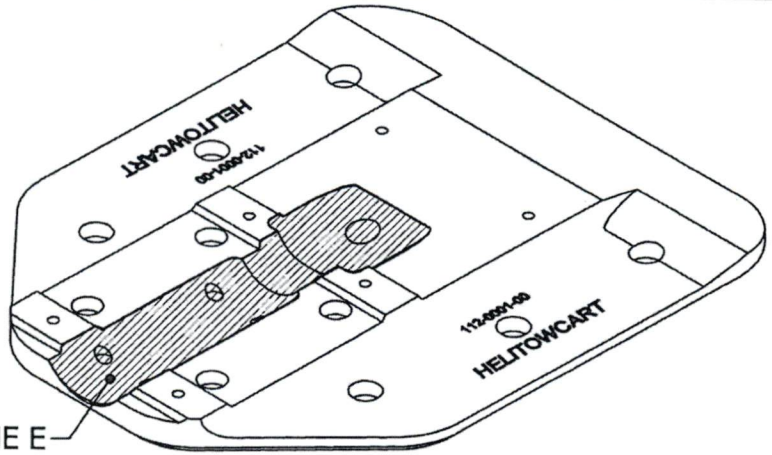
Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW PAD

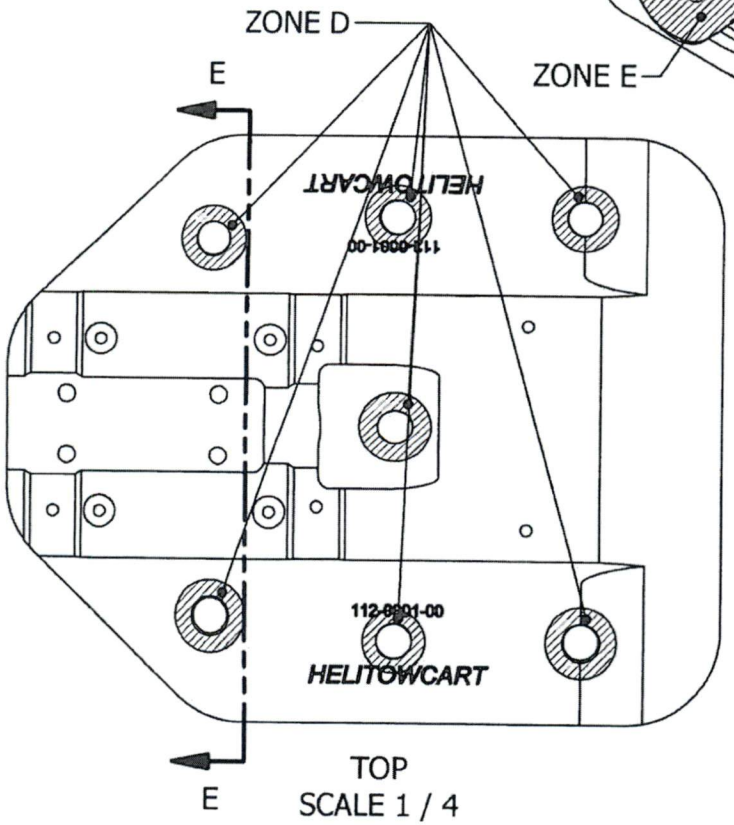
DRAWING NUMBER: 314-0001-01

REV: C

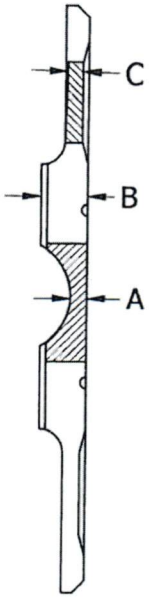
SHEET: 2 OF 3



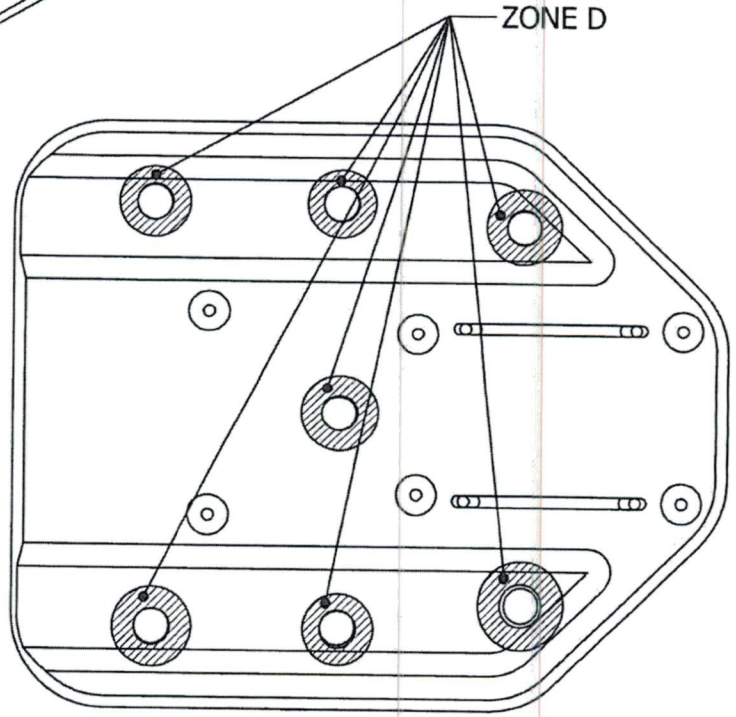
ISO
SCALE 1 / 4



TOP
SCALE 1 / 4



SECTION E-E
SCALE 1 / 4



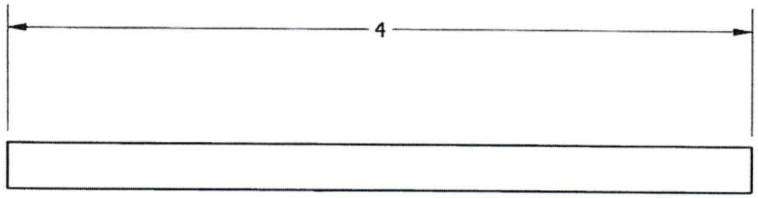
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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0001-01 REV C SHEET: 3 OF 3

NOTES:

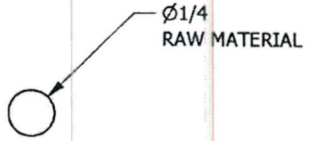
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0002-15	BEARPAW - ICE BLADE ASSEMBLY	SS304	ANNEALED	ROD 1/4" DIA.



FRONT
SCALE 1 : 1



RIGHT
SCALE 1 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-04-24
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ICEBLADE

DRAWING NUMBER: 314-0002-15 — REV: B

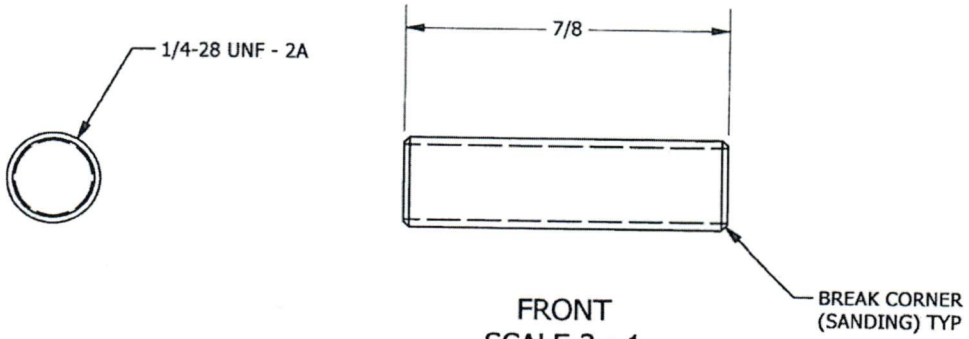
SHEET: 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0004-15	BEARPAW - ICEBLADE THREADED ROD	SS304	ANNEALED	1/4-28 UNF - 2A



FRONT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-04-24
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ICEBLADE THREADED ROD

DRAWING NUMBER: 314-0004-15 — REV: B

SHEET: 1 OF 1

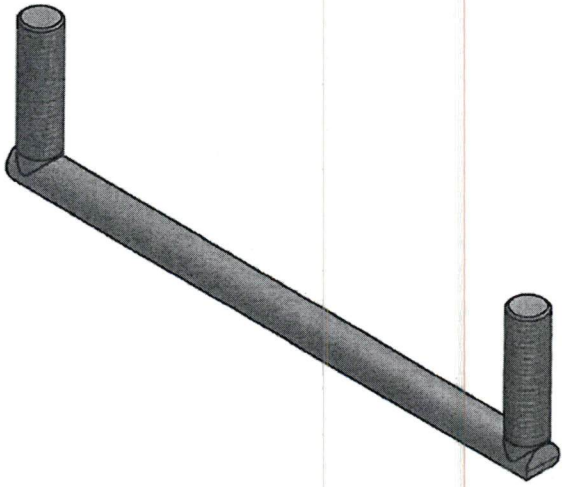
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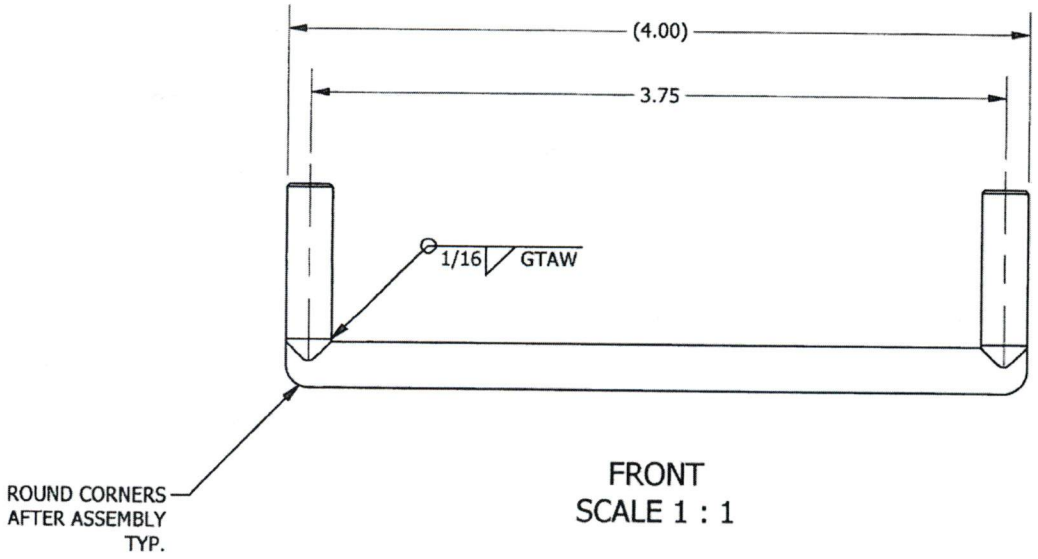
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX.

3. FILLER MATERIAL AWS A-5.9 / ASME SFA-5.9 MGSS308L

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0002-15	BEARPAW - ICE BLADE ASSEMBLY	SS304	ANNEALED	ROD 1/4" DIA.
2	2	314-0004-15	BEARPAW - ICEBLADE THREADED ROD	SS304	ANNEALED	1/4-28 UNF - 2A





FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-04-24
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ICEBLADE ASSEMBLY
DRAWING NUMBER: 314-0005-15
REV: B
SHEET: 1 OF 1

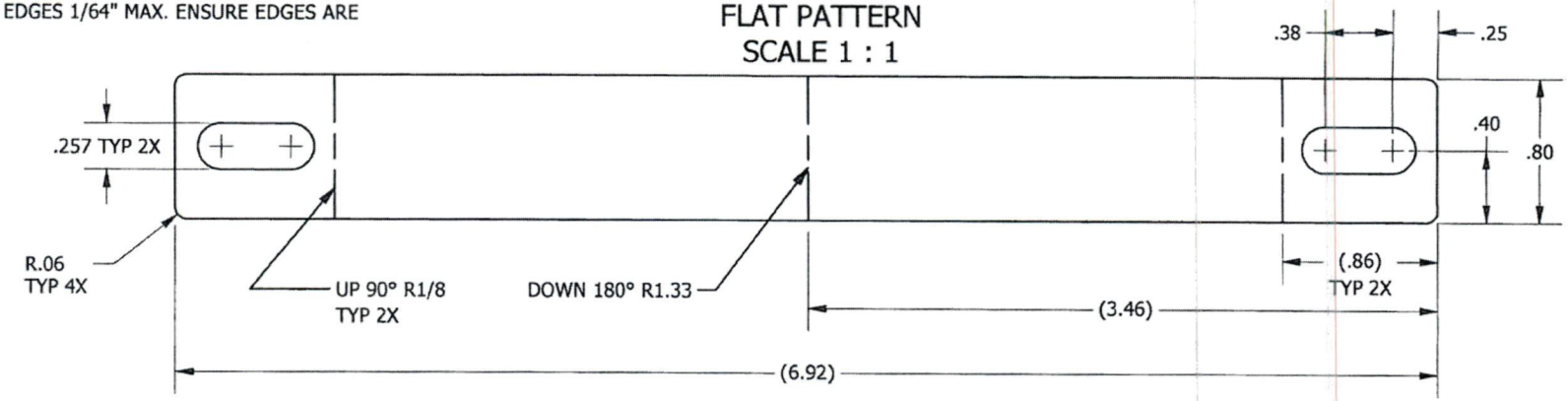
NOTES:

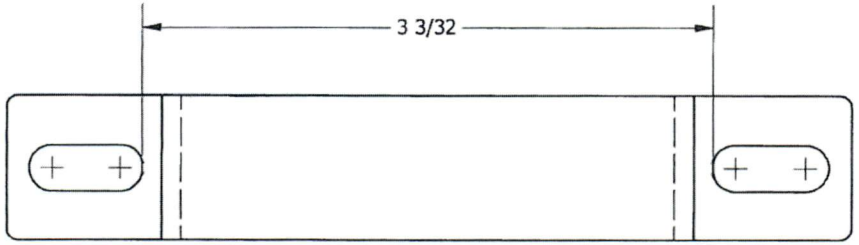
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

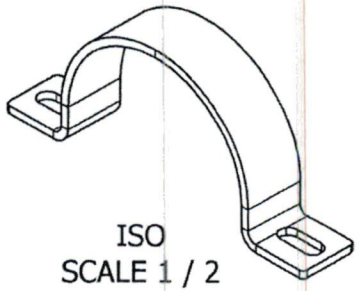
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12

FLAT PATTERN
SCALE 1 : 1

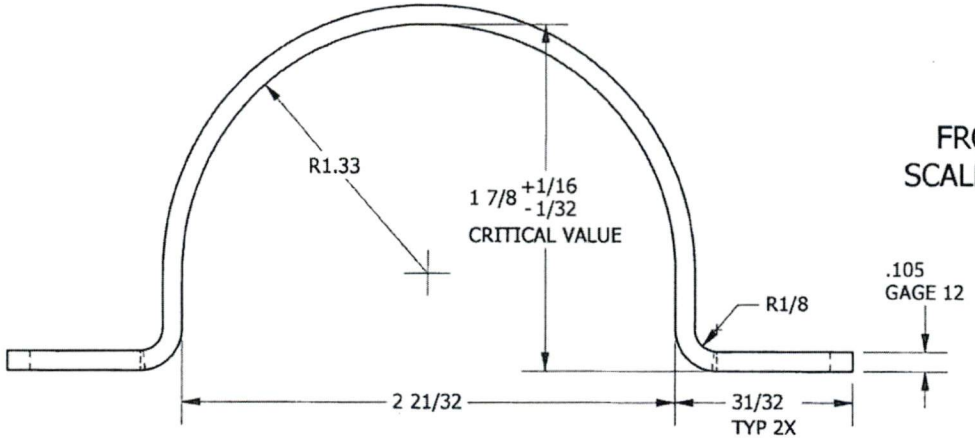




TOP
SCALE 1 : 1



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	0.800 WAS 0.750 - GAGE 12 WAS 14	G.LAPOINTE	M. ZGELA	2006-07-31
C	MODIFIED BEND RADIUS FROM 1/16" TO 0.120"	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006/04/24	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2006/04/24	
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°	UNITS: INCH	
	SIZE: A	
	SCALE: N/A	

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW U-SHAPED CLIP

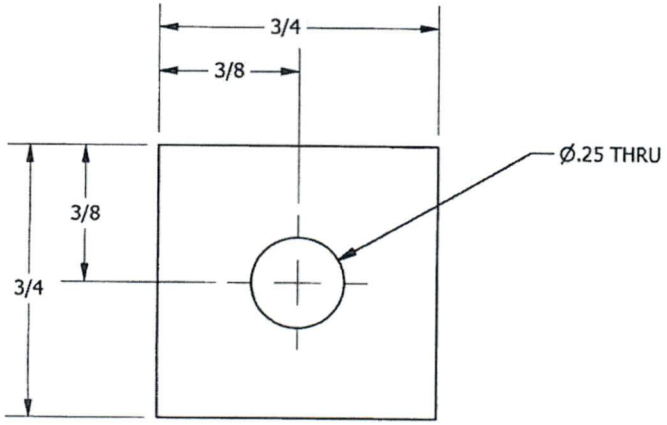
DRAWING NUMBER: 314-0006-15 REV: C

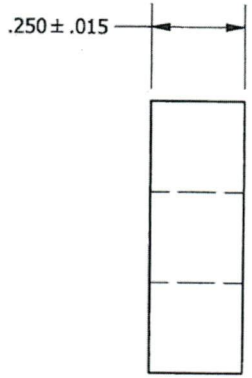
SHEET: 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.





FRONT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-08-08
B	HOLE 0.25", REMOVED REV. LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-09-06
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-08-08
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

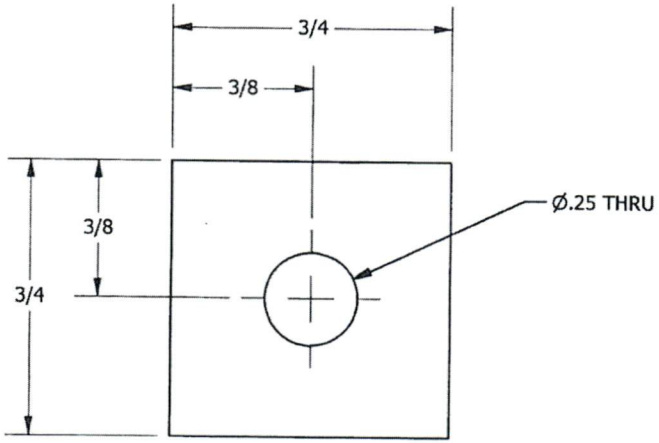
Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW FILLER BLOCK 1/4"
DRAWING NUMBER: 314-0012-01
REV: B
SHEET: 1 OF 1

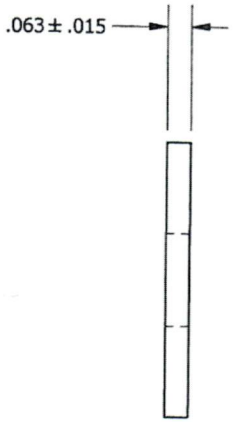
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.



FRONT
SCALE 2 : 1



RIGHT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-09-06
B	HOLE: 0.25", THICKNESS: 0.063", REMOVED REV. LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-09-06
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-09-06
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

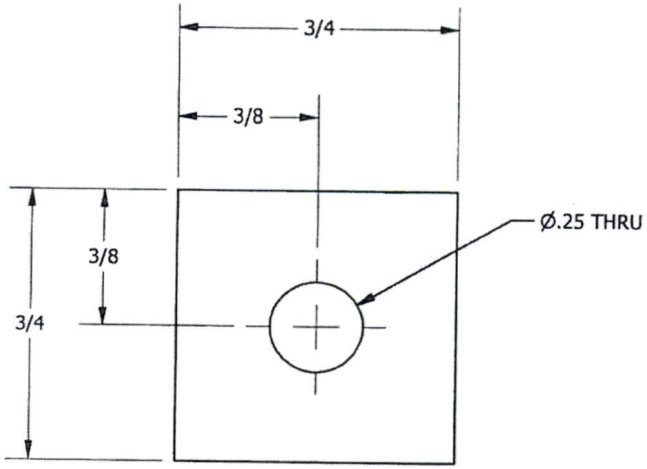
Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW FILLER BLOCK 1/16"
DRAWING NUMBER: 314-0014-01
REV: B
SHEET: 1 OF 1

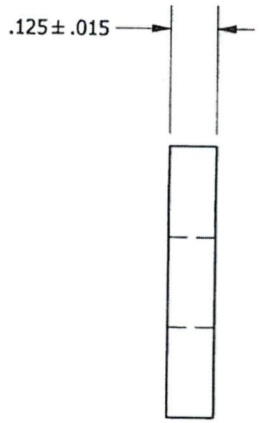
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.



FRONT
SCALE 2 : 1



RIGHT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-09-06
B	0.25" HOLE, REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

THIS DRAWING IS PROPERTY OF ***HELITOWCART*** AND MAY NOT BE COPIED OR DISTRIBUTED WITHOUT AUTHORIZATION.

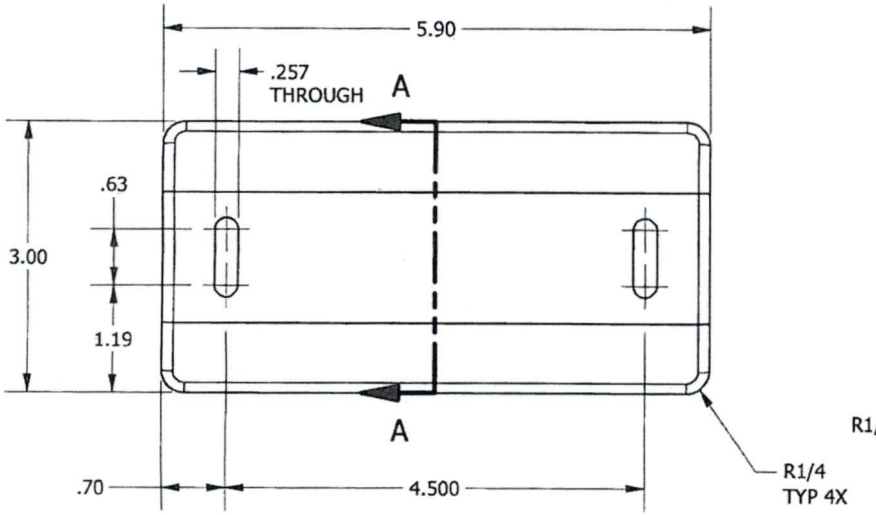
DRAFTED BY: G. LAPOINTE	DATE: 2006-09-06	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW FILLER BLOCK 1/8"
APPROVED TCCA BY: M. ZGELA	DATE: 2006-09-06	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0015-01 REV B SHEET: 1 OF 1

NOTES:

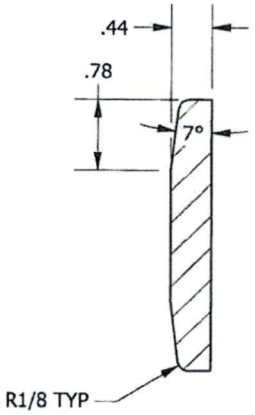
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX. ENSURE EDGES ARE SMOOTH.

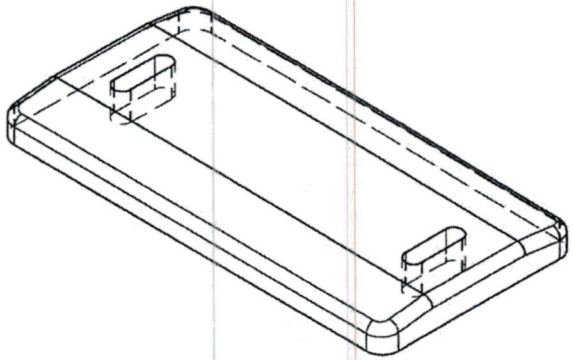
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.



TOP
SCALE 1 / 2



SECTION A-A
SCALE 1 / 2



ISO
SCALE 1 / 2

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2009-10-22
B	MODIFICATION OF ANGLE AND ADDITION OF SLOTTED HOLES	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER — DATE: 2009-10-22

CHECKED BY: — DATE:

APPROVED TCCA BY: M. ZGELA — DATE: 2009-10-22

IF NOT SPECIFIED GENERAL TOLERANCE
1/X ± 1/32
X.XX ± 0.010"
X.XXX ± 0.005"
ANG. ± 1°

UNITS: INCH

SIZE: A

SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW FILLER BLOCK REAR

DRAWING NUMBER: 314-0022-01

REV: B

SHEET: 1 OF 1

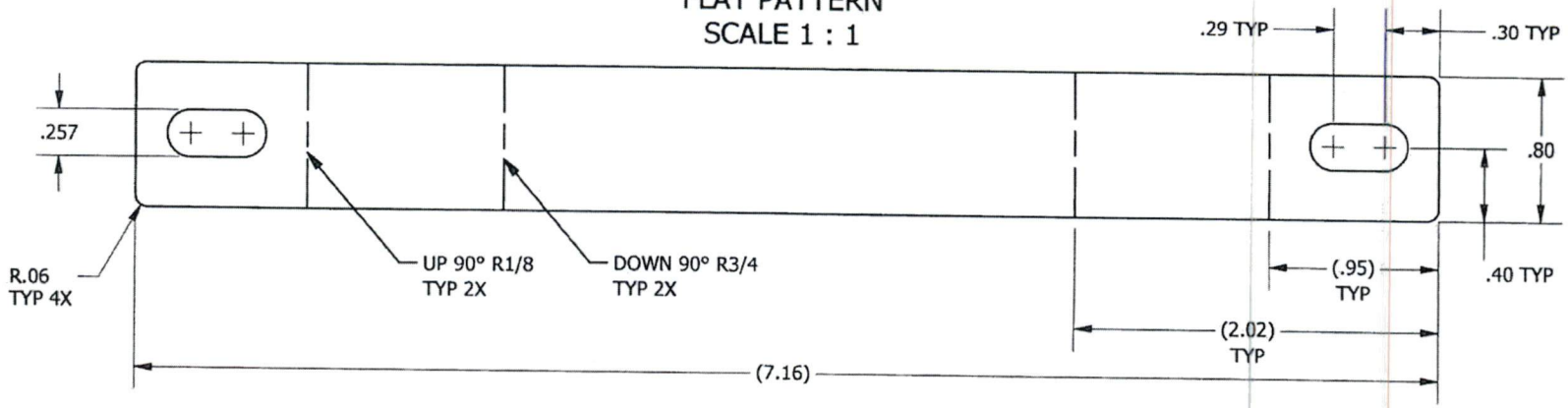
NOTES:

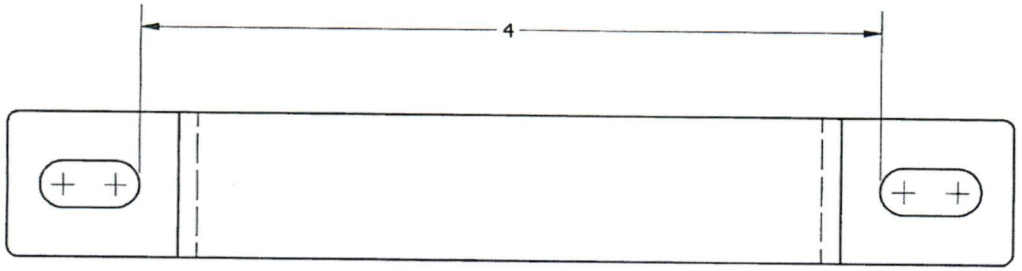
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

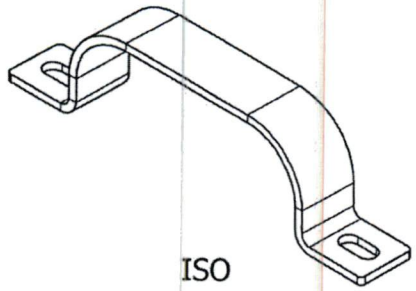
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12

FLAT PATTERN
SCALE 1 : 1

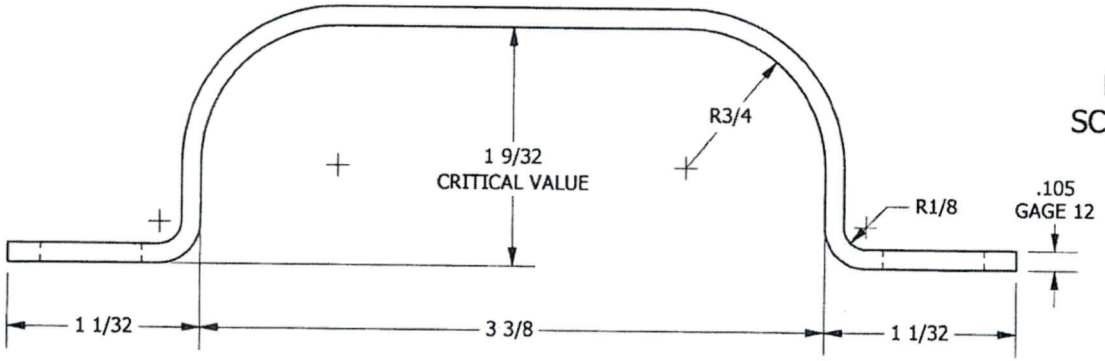




TOP
SCALE 1 : 1



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

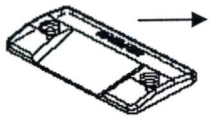
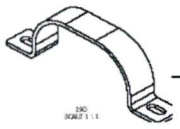
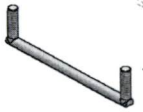
REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2010-04-15
B	MODIFIED BEND RADIUS (R3/4) AND REDUCED HEIGHT	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER	DATE: 2010-04-15	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW LOW U-SHAPED CLIP
APPROVED TCCA BY: M. ZGELA	DATE: 2010-04-15	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0023-15 REV B SHEET: 1 OF 1

ORIGINE & USAGE INTERNE SEULEMENT
(PAS TC)

314-0010-00-J
Bearpaws Parts List

	Part Name	HTC P/N	Quantities per PAIR BP4466	BP350	BP130
PADS	Pad /BP44	314-0001-01	2		
	Pad /BP350	314-0018-01		2	
	Pad /BP130	314-0024-01			2
HARDWARE	Plastic bag 8x10	na	2	2	2
	Rear Filler block/BP44	314-0022-01	2		
	U-Clip / BP44	314-0006-15	4		
	U-Clip / BP350	314-0019-15		6	
	U-Clip / BP130	314-0026-15			4
	Low U-Clip/ BP44	314-0023-15	2		
	Shrink on U-Clips	314-0021-01	6	6	6
	L-Clip/BP130	314-0025-15			4
	Iceblade	263-0005-15	4	8	8
	Slotted clip support	314-0007-15	0	12	12
	Bolt - AN4-14A	261-0001-17	4	12	12
	Bolt - AN4-15A	261-0002-17	4		
	Bolt - AN4-16A	261-0003-17	4		
	Nuts - MS20365-428 equiv: AN365-428A or MS21044N4	262-0001-17	20	28	28
	Washers - AN960-416	263-0001-17	32	40	40
	Filler block 1/4"	314-0012-01	4	12	
	Filler block 1/16"	314-0014-01	16		
	Filler block 1/8"	314-0015-01	4		12
DOCUMENTS	Plastic bag 9 x12	na	1	1	1
	Document - MDL/BP44	HTC-MDL-BP-R44-1000	1		
	Document - INST/BP44	314-0011-00	1		
	Document - MDL/BP350	HTC-MDL-BP-AS350-1000		1	
	Document - INST/BP350	314-0018-01-S		1	
	Document - MDL/BP130	HTC-MDL-BP-EC130-1000			1
	Document - INST/BP130	314-0031-00			1
	Can STC	na	1	1	1
	US STC	na	1	1	1
PACKAGING	Box / BP44 16.5x13x3.5"	na	1		
	Box / BP350 & BP130 24x21x3"	na		1	1
	Label /BP44	273-0001-04	1		
	Label /BP350 & BP130	273-0002-04		1	1

Nature of modifications: Modified BP44 for BP4466

STC-corrections for coming one submitted to Renaud oct 7, 2013

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: September-26-13 2:59 PM
To: 'Renaud Berthelot-Richer'
Cc: 'Mirko Zgela'; 'Jean-Francois Lemire'
Subject: Suivi d'approb de TC - Bearpaws 44 (pour R66)

Allo Renaud (et Mirko, et Jean-François),
Ce matin j'ai appelé Renaud pour demander quand on aura des nouvelles de TC... et bien ce midi mon client d'Alaska m'a encore appelé pour demander quand il aura accès à ce produit! (je devais sentir les vibes sans le savoir car il m'appelle régulièrement –il a réellement besoin de ces bearpaws pour son 66!).

Rappel :

1) On aura besoin du STC US pour ceci à la vitesse de la lumière dès que TC aura approuvé. Svp s'assurer que la demande à FAA soit faite promptement par TC.

2) Mes Suggestions d'Arguments à soumettre à TC pour les encourager à passer ce dossier en 1er :
   a. On a des clients qui ont à opérer sur la neige et c'est une question de sécurité pour eux. Important de prioriser la sécurité...
   b. On a un des plus beaux dossiers qui soit (vous avez fait une super job!). Un délice à lire maintenant qu'on y a fait un méga ménage... suggérer au représentant de TC de se donner un super break et de jouir de passer un dossier assurément l'fun : le notre, entre des dossiers plus lourds. Ce sera bon pour son moral ;)))
   c. On a pas réinventé la roue... on étend seulement l'application à un type d'hélico de plus... c'est du gâteau !!!
   d. Il est peut etre préférable de dire à cet agent qu'il vaut mieux nous mettre en priorité s'ils ne veulent pas avoir « la madame » qui vous respire dans le cou s'approcher et lui respirer dans le cou ;)))

À celui de vous qui parlera à TC : À l'avance, Merci infiniment pour une performance géniale qui saura emballer TC !!

J'attends de vos nouvelles! J'allume mes lampions!

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

Transport Canada Transports Canada

Department of Transport

Supplemental Type Certificate

This approval is issued to:

Helitowcart (Vanair Inc.)
877A, Alphonse-Desrochers
St-Nicholas, Lévis, Québec
Canada G7A 5K6

Number: SH06-24
Issue No.: 4
Approval Date: August 17, 2006
Issue Date: October 10, 2013

Responsible Office: Québec
Aircraft/Engine Type or Model: See Continuation Sheet on Page 2 of 2
Canadian Type Certificate or Equivalent: See Continuation Sheet on Page 2 of 2
Description of Type Design Change: Installation of Helitowcart BearPaw

Installation/Operating Data, Required Equipment and Limitations:

For the Robinson Models R44, R44 II and R66 Helicopters:

Installation of Helitowcart Bear Paw BP44 is to be performed in accordance with TC approved Helitowcart Master Document List Report: HTC-MDL-BP-R44-1000, Revision D dated August 28, 2013, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Document: 314-0011-00 Rev E, BearPaw Model BP44, Installation Instructions – R44/R66.

or later

See Continuation Sheet Page 2 of 2

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

Jean-Pierre Francoeur
For Minister of Transport

Canada

Installation/Operating Data,
Required Equipment and Limitations (Cont'd):

For the Eurocopter (formerly Aerospatiale) AS350 and AS355 Series Helicopters:

Installation of Helitowcart Bear Paw BP350 is to be performed in accordance with TC approved Helitowcart Master Document List Report: HTC-MDL-BP-AS350/355-1000, Revision F dated April 8, 2010, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Document: 314-0020-00-E, BearPaw Model BP350, Installation Instructions – AS350/355.

For the Eurocopter EC 130 Helicopters:

Installation of Helitowcart Bear Paw BP130 is to be performed in accordance with TC approved Helitowcart Master Document List Report: HTC-MDL-BP-EC130-1000, Revision A dated May 13, 2011, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Document: 314-0031-00-A, BearPaw Model BP130, Installation Instructions – EC130.

Fleet Eligibility List		
Make	**Model**	**Type Certificate Data Sheet**
Robinson	R44	H-97
Robinson	R44 II	H-97
Robinson	R66	H-111
Eurocopter	AS 350 B	H-83
Eurocopter	AS 350 B1	H-83
Eurocopter	AS 350 B2	H-83
Eurocopter	AS 350 B3	H-83
Eurocopter	AS 350 BA	H-83
Eurocopter	AS 350 D	H-83
Eurocopter	EC 130 B4	H-83
Eurocopter	AS 355 E	H-87
Eurocopter	AS 355 F	H-87
Eurocopter	AS 355 F1	H-87
Eurocopter	AS 355 F2	H-87
Eurocopter	AS 355 N	H-87

– End –

Transport Canada Transports Canada

Department of Transport

Supplemental Type Certificate

This approval is issued to:

Helitowcart ~~Inc.~~ (VANAIR INC.)
~~860 Marie-Victorin~~ 877a Alphonse-Desrochers
St-Nicholas, Lévis, Québec
Canada G7A ~~3S9~~ 5K6

Number: SH06-24
Issue No.: ~~3~~ 4
Approval Date: August 17, 2006
Issue Date: ~~July 7, 2011~~

Responsible Office: Québec

Aircraft/Engine Type or Model: See Continuation Sheet Page 2 of 2

Canadian Type Certificate or Equivalent: See Continuation Sheet Page 2 of 2

Description of Type Design Change: Installation of Helitowcart BearPaw

Installation/Operating Data, Required Equipment and Limitations:

For the Robinson Models R44, ~~and~~ R44 II Helicopters ~~and~~ R66 :

Installation of Helitowcart Bear Paw BP44 is to be performed in accordance with TC approved Helitowcart ~~Inc.~~ Master Document List, Report: HTC-MDL-BP-R44-1000, Revision ~~C~~ D dated ~~April 15, 2010,~~ or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart ~~Inc.~~ Installation Instructions Document: "HTC-314-0011-00-~~D~~, BearPaw Model BP44, Installation Instructions – R44" & R66"

See Continuation Sheet Page 2 of 2

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

Jean-Pierre Francoeur
For Minister of Transport

Canada

Installation/Operating Data,
Required Equipment and Limitations (Cont'd):

For the Eurocopter (formerly Aerospatiale) AS350 and AS355 Series Helicopters:

Installation of Helitowcart Bear Paw BP350 is to be performed in accordance with TC approved Helitowcart Inc. Master Document List, Report: HTC-MDL-BP-AS350/355-1000, Revision F dated April 8, 2010, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Inc. Installation Instructions Document: "HTC-314-0020-00-E, BearPaw Model BP350, Installation Instructions – AS350/355".

For the Eurocopter EC 130 Helicopters:

Installation of Helitowcart Bear Paw BP130 is to be performed in accordance with TC approved Helitowcart Inc. Master Document List, Report: HTC-MDL-BP-EC130-1000, Revision A dated May 13, 2011, or later Transport Canada approved revision.

The BearPaw must be installed in accordance with Helitowcart Inc. Installation Instructions Document: "HTC-314-0031-00-A, BearPaw Model BP130, Installation Instructions – EC 130".

Fleet Eligibility List		
Make	**Model**	**Type Certificate Data Sheet**
Robinson	R44	H-97
Robinson	R44 II	H-97
Eurocopter	AS 350 B	H-83
Eurocopter	AS 350 B1	H-83
Eurocopter	AS 350 B2	H-83
Eurocopter	AS 350 B3	H-83
Eurocopter	AS 350 BA	H-83
Eurocopter	AS 350 D	H-83
Eurocopter	EC 130 B4	H-83
Eurocopter	AS 355 E	H-87
Eurocopter	AS 355 F	H-87
Eurocopter	AS 355 F1	H-87
Eurocopter	AS 355 F2	H-87
Eurocopter	AS 355 N	H-87
Robinson	R66	?

– End –

Canada

Tel que soumis à TC

Transport Canada	**Date:** August 28, 2013
Declaration of the Holder Understanding the Responsibility	**Approval #** Q-SH06-24 Issue#4

Statement

Reference: Q-SH06-24 Issue #4, "Installation of Helitowcart BearPaw"

The reference STC has been issued to:

Helitowcart
877A Alphonse-Desrochers
St-Nicolas, Levis, (Québec)
Canada G7A 5K6

as the registered holder. As required by the Canadian Aviation Regulation it is duly declared that Helitowcart understands the responsibilities of a Design Approval Document Holder as defined in CAR 521, Division VIII.

Note: This document must be filled and return to:

ATTN: Mirko Zgela (DAR #310)
Aviatech Technical Services Inc.
2595, rue St-Olivier
Trois-Rivieres, Québec, Canada
G9A 4G1

N. BARBEAU	D. Barbeau	2013 09 09
Name	Signature	Date

VP COMMERCIAL AFFAIRS
Title – Authorized Representative

HELI TOW CART BY VANAIR

Master Document List

Helitowcart

Robinson R44/R66 Helicopters
Installation of BearPaw Model BP44

DRAFT

Report: HTC-MDL-BP-R44-1000 (Rev D)

APPROVED BY: _____ DATE: 2013-08-28

Mirko Zgela
Design Approval Representative DAR #310

Tel 1-418-561-4512, Fax: 1-418-836-4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

Revision	Revision Date	Revision of Entry	Entered by
D	2013-08-28	Addition of Robinson R66 helicopter to the fleet eligibility list for BearPaw BP44 and product refinement.	R. Berthelot
C	2010 04 15	Addition of a rear U shaped clip in the streamline BearPaw Pad configuration	S. Bernier
B	2009 10 22	Introduction of new streamline BearPaw Pad configuration as alternate	S. Bernier
A	2006 09 07	Drawings are added to include the provision of shims during the installation.	N. Barbeau

DRAFT

Tel 1-418-561-4512, Fax: 1-418-836-4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

HELI TOW CART BY VANAIR

1.0 MASTER DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-R44-1000	Compliance Plan - Robinson R44/R66 Helicopters -Installation of Bear Paw Model BP44	A	DAR 310	Aug 28, 2013
314-0011-00	BearPaw Model BP44 – Installation Instructions - R44/R66	E	DAR 310	Aug 9, 2013
ATS-0709-FTP-1000	R66 BearPaw Installation - Flight Test Plan/Report	NC	DAR 310	Aug 27, 2013
ATS-0709-TM-1000	Structural Substantiation – Addition of R66 Helicopter	NC	DAR 310	Aug 9, 2013
ATS-0709-EO-1000	Engineering Order – Installation of all BearPaw BP44 Configurations on R66	NC	DAR310	Aug 9, 2013
ATS-EO-BP-R44-1000	Engineering Order - BearPaw Streamline BP44	NC	DAR 310	Apr 15, 2010
HTC-TM-BP-R44-1000	Structural Substantiation - BearPaw Streamline BP44	NC	DAR 310	Oct 22, 2009
AAC-FTR-C-FBLO	Simple External Modification – Applicant's Flight Test Plan/Report	NC	DAR 310	Aug 4, 2006
AAC-STR-BP-R44-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP44	NC	DAR 310	July 4, 2006

DRAFT

2.0 MASTER DRAWINGS

Drawings #	Title	Revision Status	Approval by	Date
112-0001-00	BearPaw – Assembly - 4 tiges	F	DAR 310	Aug 9, 2013
314-0001-01	BearPaw – Pad - Engraving - 20 Rev	C	DAR 310	Aug 9, 2013
314-0002-15	BearPaw – Iceblade - Cartouche	B	DAR 310	Aug 9, 2013
314-0004-15	BearPaw – Iceblade Threaded Rod - cartouche	B	DAR 310	Aug 9, 2013
314-0005-15	BearPaw – Iceblade Assembly - Cartouche	B	DAR 310	Aug 9, 2013
314-0006-15	BearPaw – U-Shaped Clip - Dim. & Tol.	C	DAR 310	Aug 9, 2013
314-0012-01	Filler Block 1/4" - cartouche	B	DAR 310	Aug 9, 2013
314-0014-01	Filler Block 1/16" - cartouche	B	DAR 310	Aug 9, 2013
314-0015-01	Filler Block 1/8" - cartouche	B	DAR 310	Aug 9, 2013
314-0022-01	Filler Block Rear - Slots + Shape	B	DAR 310	Aug 9, 2013
314-0023-15	BearPaw – Low U-Shaped Clip - Dim + Tol.	B	DAR 310	Aug 9, 2013

Tel 1-418-561-4512, Fax: 1-418-836-4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

3.0 REFERENCE DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
314-0008-01	Material Properties - UHMW TIVAR	A	N/A	May 24, 2006
314-0009-01	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0017-05	Heat Shrink Specifications	A	N/A	Sept 6, 2006

DRAFT

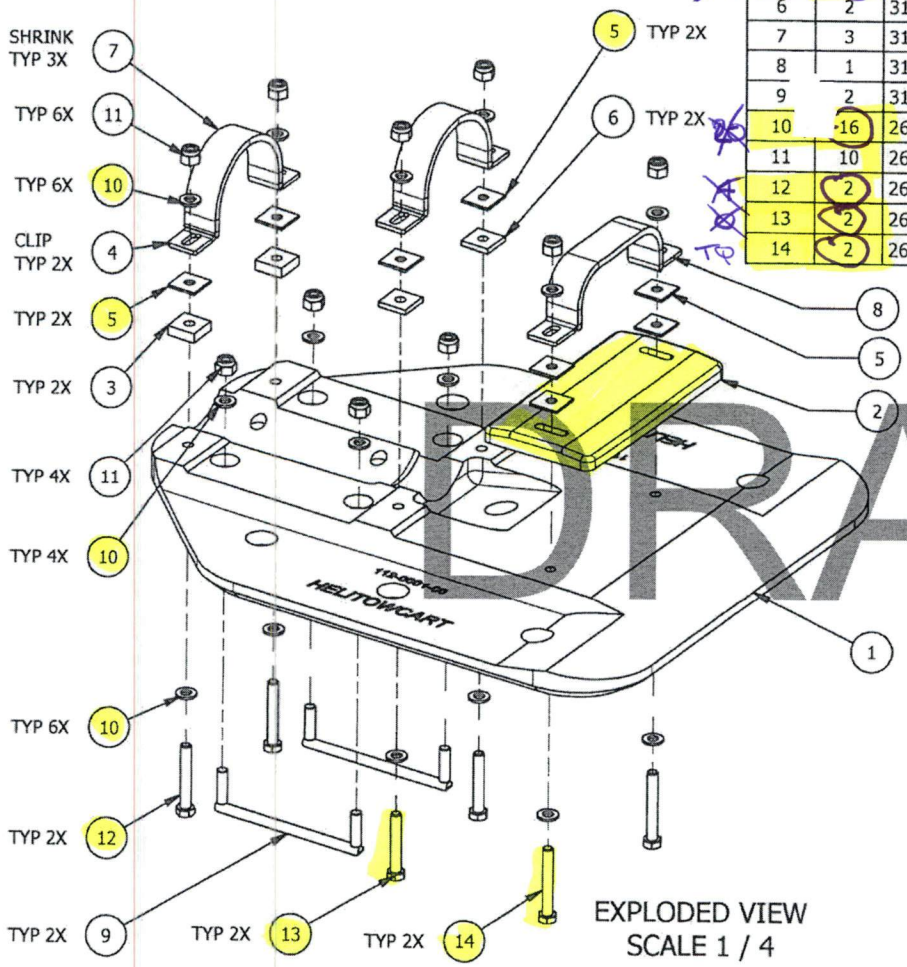
Tel 1-418-561-4512, Fax: 1-418-836-4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

NOTES:

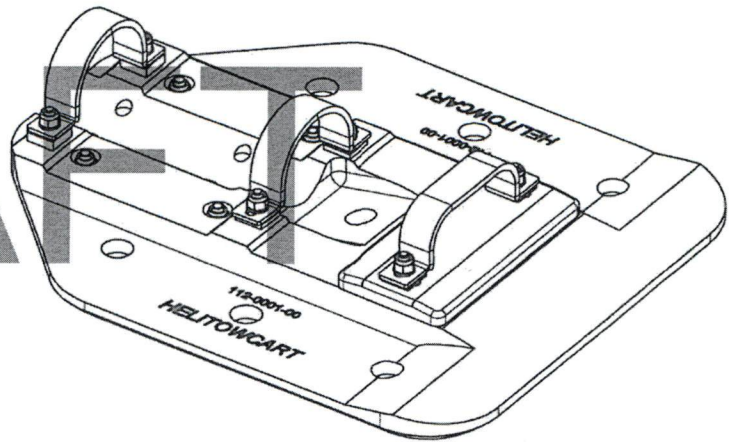
1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	8	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	314-0016-05	BEARPAW - SHRINK (FIT-221)	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	STEEL	---	---
10	16	263-0001-17	WASHER (AN960-416)	STEEL	---	1/4
11	10	262-0001-17	NYLON NUT (AN365-428A)	STEEL	---	1/4
12	2	261-0002-17	HEX BOLT (AN4-15A)	STEEL	QQ-P-416A	1/4-28
13	2	261-0001-17	HEX BOLT (AN4-14A)	STEEL	---	---
14	2	261-0003-17	HEX BOLT (AN4-16A)	STEEL	QQ-P-416A	1/4-28



EXPLODED VIEW
SCALE 1 / 4



ASSEMBLED
SCALE 1 / 4

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE	M. ZGELA	2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

THIS DRAWING IS PROPERTY OF *HELITOWCART* AND MAY NOT BE COPIED OR DISTRIBUTED WITHOUT AUTHORIZATION.

DRAFTED BY: G. LAPOINTE — DATE: 2006/04/25
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006/04/25
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ASSEMBLY
DRAWING NUMBER: 112-0001-00
REV: F
SHEET: 1 OF 1

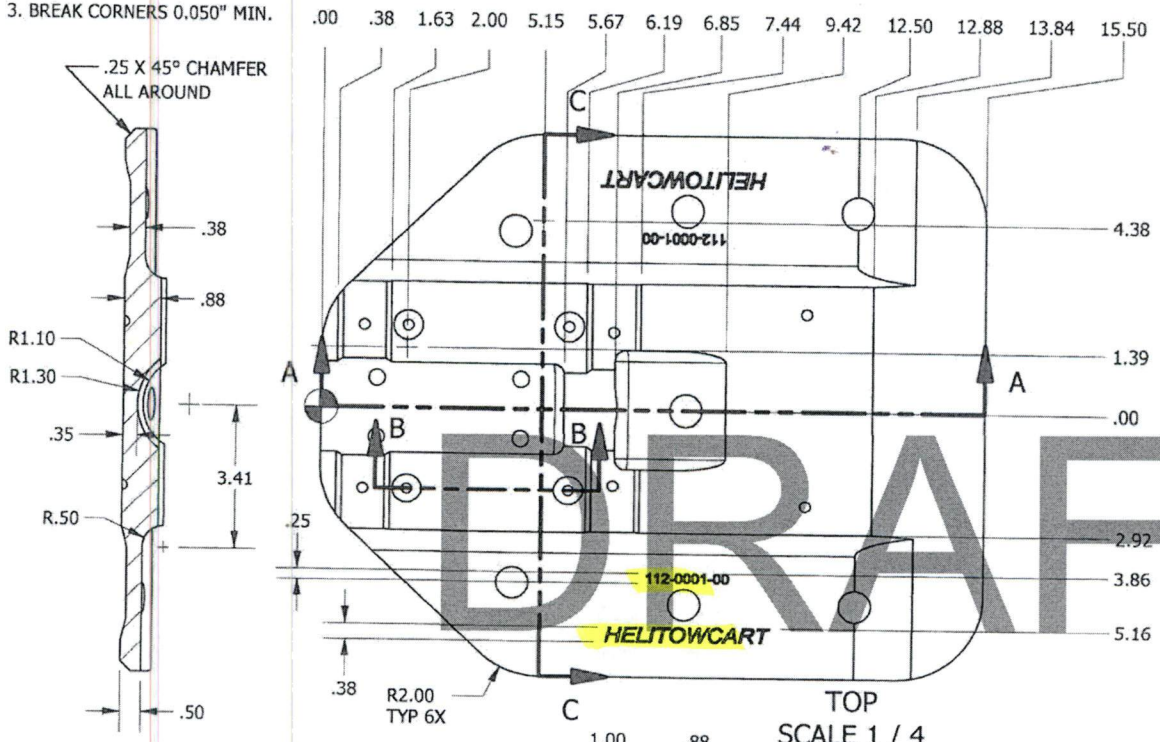
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX.

3. BREAK CORNERS 0.050" MIN.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
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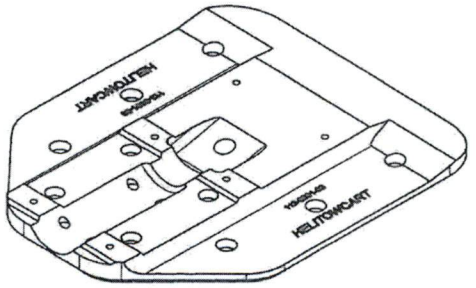


SECTION C-C
SCALE 1 / 4

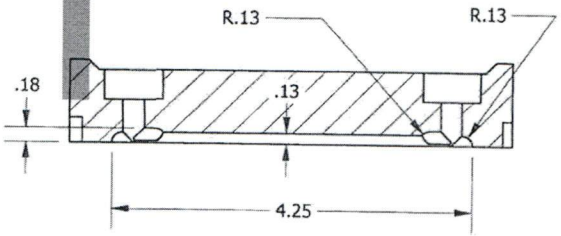
TOP
SCALE 1 / 4

RIGHT
SCALE 1 / 4

SECTION A-A
SCALE 1 / 4



ISO
SCALE 1 / 6



SECTION B-B
SCALE 1 / 2

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	ADDITION OF STREAMLINE PAD CONFIGURATION	S. BERNIER	M. ZGELA	2009-10-22
C	MODIFIED ENGRAVING, CHANGED ZONES FOR DAMAGE TOLERANCE	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-04-24
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

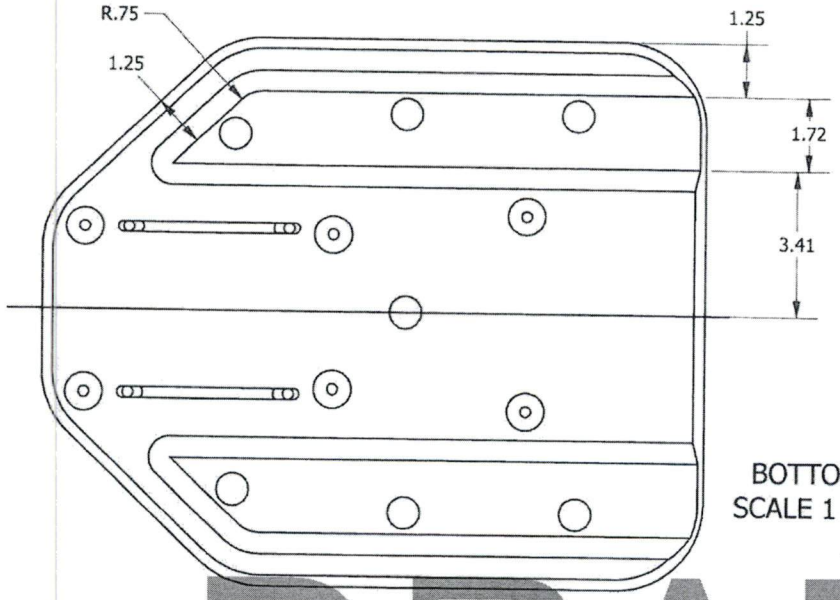
Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW PAD

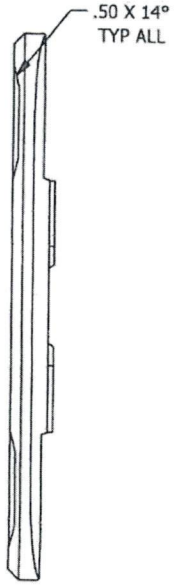
DRAWING NUMBER: 314-0001-01

REV: C

SHEET: 1 OF 3

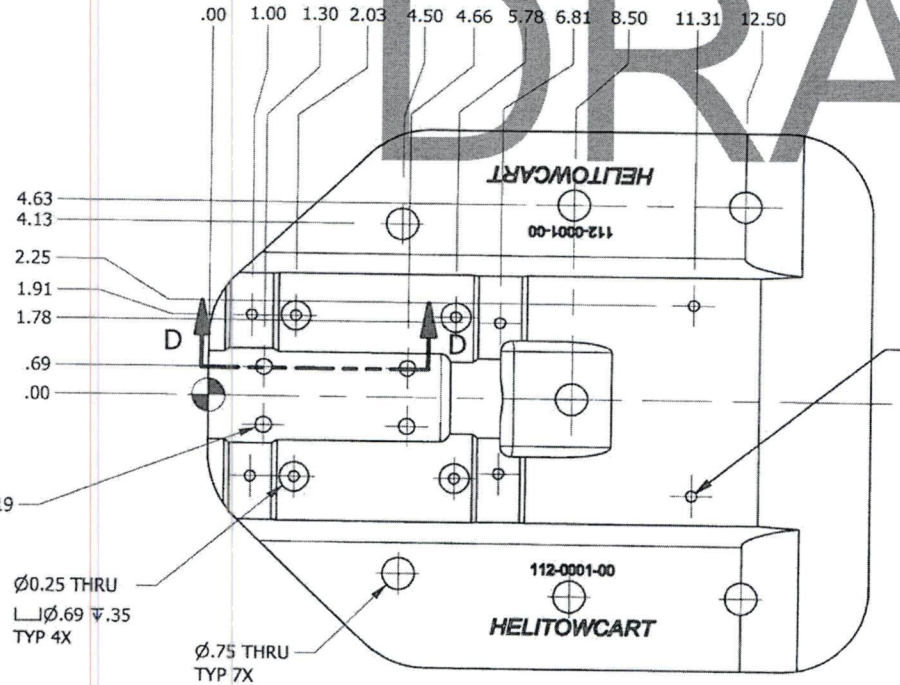


BOTTOM
SCALE 1 / 4

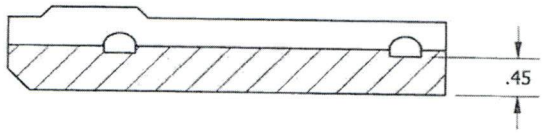


REAR
SCALE 1 / 4

DRAFT

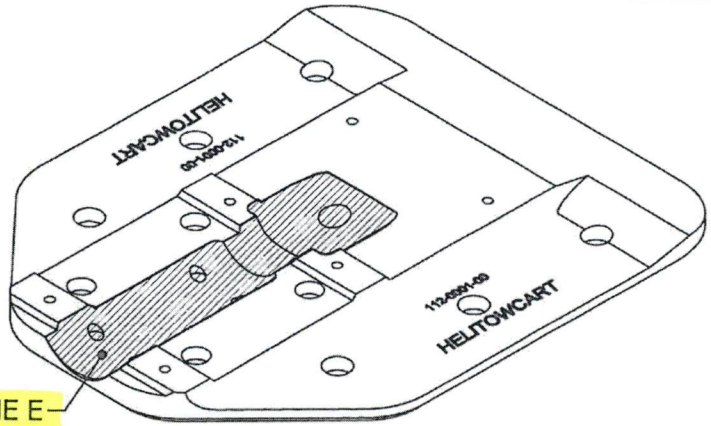


TOP
SCALE 1 / 4

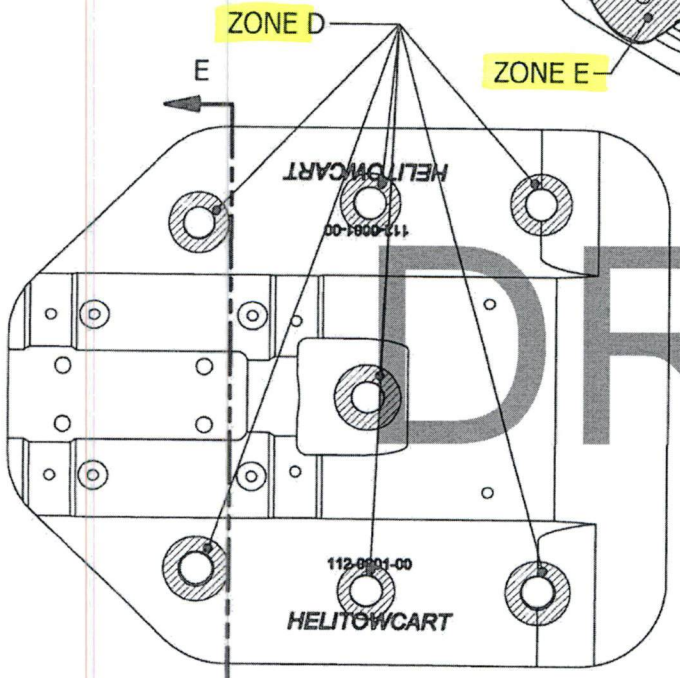


SECTION D-D
SCALE 1 / 2

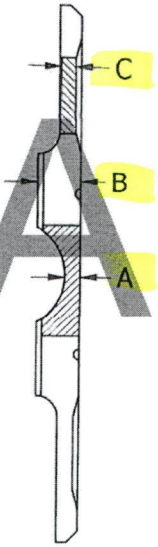
THIS DRAWING IS PROPERTY OF ***HELITOWCART*** AND MAY NOT BE COPIED OR DISTRIBUTED WITHOUT AUTHORIZATION.		**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0001-01 REV C SHEET: 2 OF 3



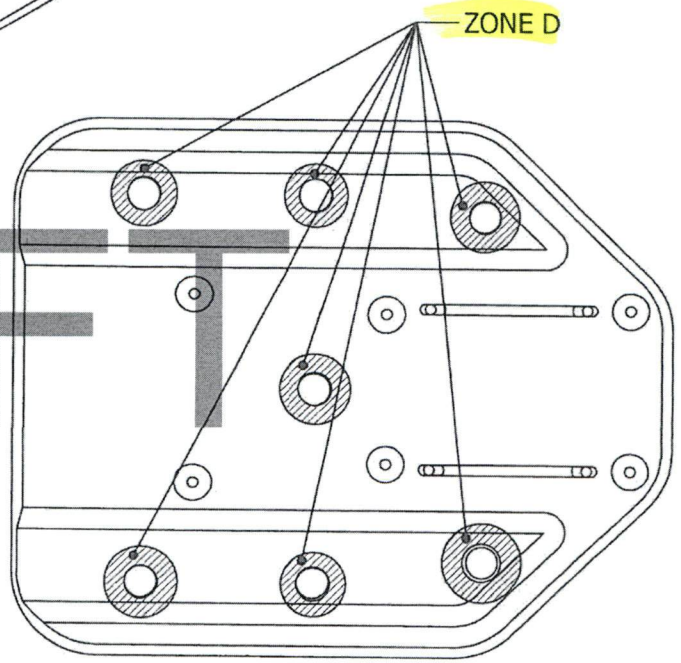
ISO
SCALE 1 / 4



TOP
SCALE 1 / 4



SECTION E-E
SCALE 1 / 4



DRAFT

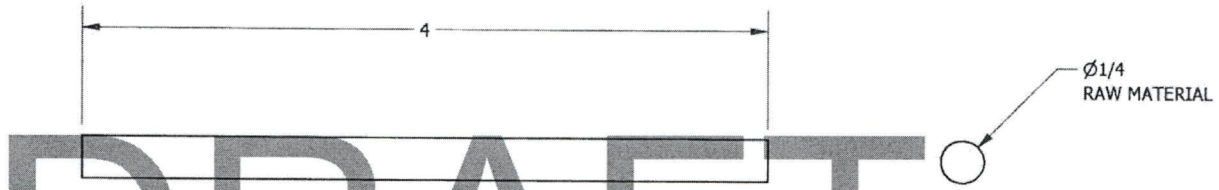
THIS DRAWING IS PROPERTY OF ***HELITOWCART*** AND MAY NOT BE COPIED OR DISTRIBUTED WITHOUT AUTHORIZATION.		**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0001-01 REV C SHEET: 3 OF 3

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0002-15	BEARPAW - ICE BLADE ASSEMBLY	SS304	ANNEALED	ROD 1/4" DIA.



DRAFT

FRONT
SCALE 1 : 1

RIGHT
SCALE 1 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

THIS DRAWING IS PROPERTY OF **HELITOWCART** AND MAY NOT BE COPIED OR DISTRIBUTED WITHOUT AUTHORIZATION.

DRAFTED BY: G. LAPOINTE — DATE: 2006-04-24

CHECKED BY: — DATE:

APPROVED TCCA BY: M. ZGELA — DATE: 2006-04-24

IF NOT SPECIFIED GENERAL TOLERANCE
1/X ± 1/32
X.XX ± 0.010"
X.XXX ± 0.005"
ANG. ± 1°

UNITS: INCH

SIZE: A

SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ICEBLADE

DRAWING NUMBER: 314-0002-15

REV: B

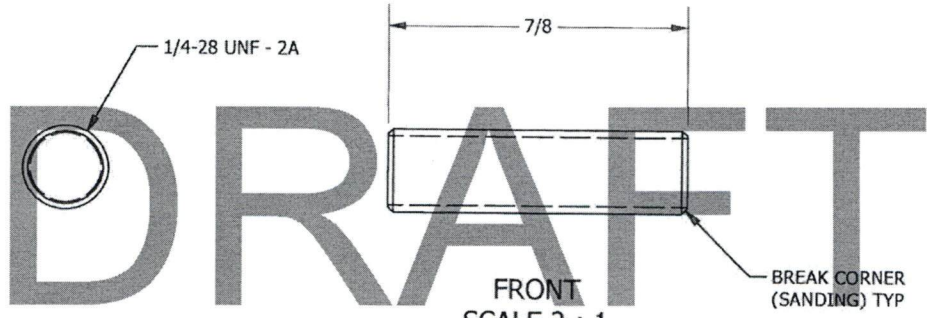
SHEET: 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0004-15	BEARPAW - ICEBLADE THREADED ROD	SS304	ANNEALED	1/4-28 UNF - 2A



DRAFT

FRONT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW ICEBLADE THREADED ROD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0004-15 REV B SHEET: 1 OF 1

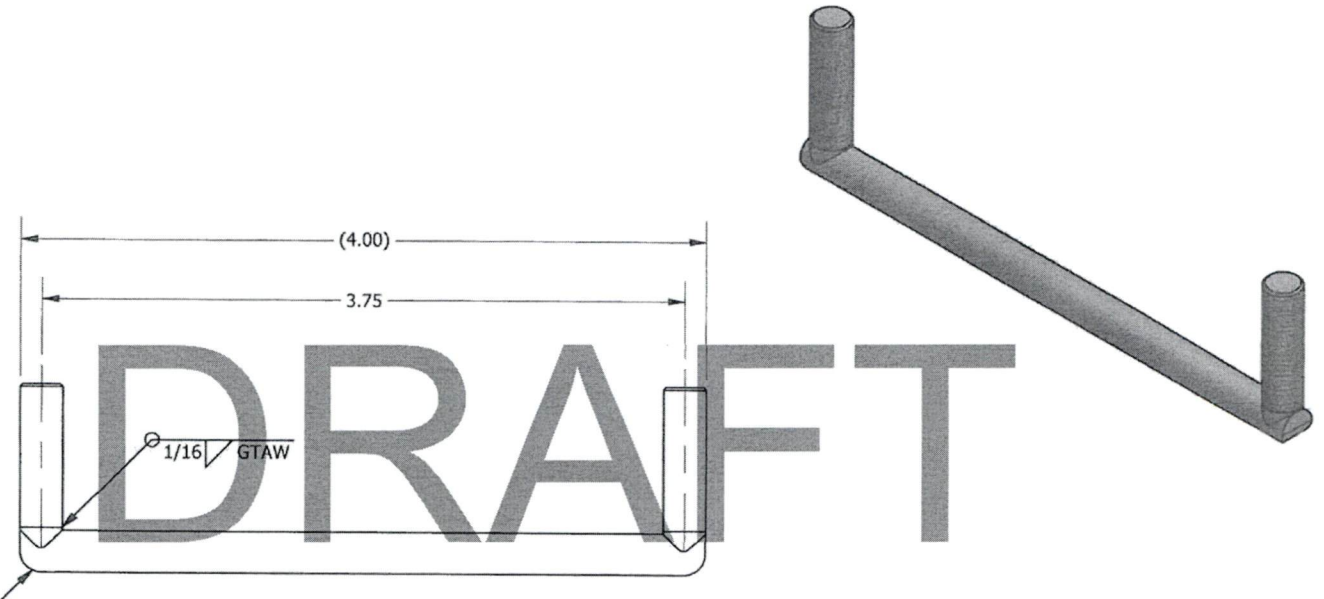
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX.

3. FILLER MATERIAL AWS A-5.9 / ASME SFA-5.9 MGSS308L

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0002-15	BEARPAW - ICE BLADE ASSEMBLY	SS304	ANNEALED	ROD 1/4" DIA.
2	2	314-0004-15	BEARPAW - ICEBLADE THREADED ROD	SS304	ANNEALED	1/4-28 UNF - 2A



DRAFT

FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-04-24
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ICEBLADE ASSEMBLY
DRAWING NUMBER: 314-0005-15
REV: B
SHEET: 1 OF 1

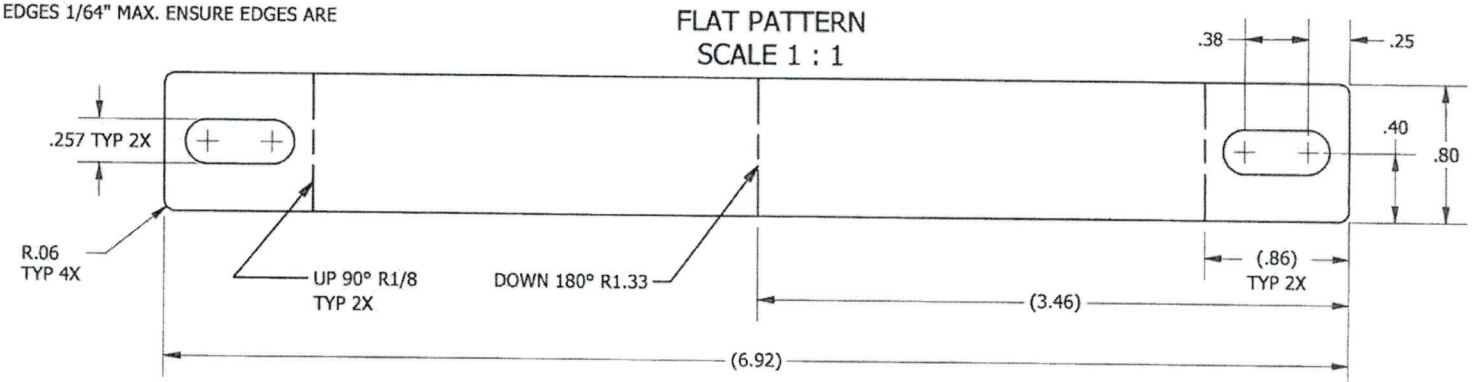
NOTES:

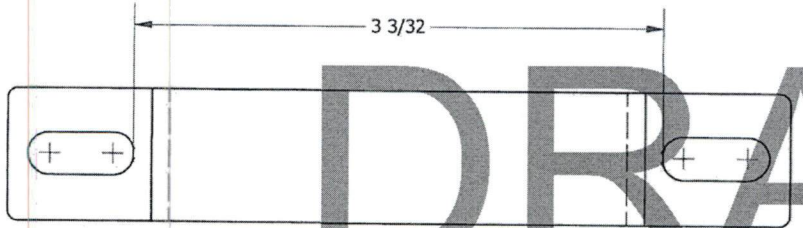
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

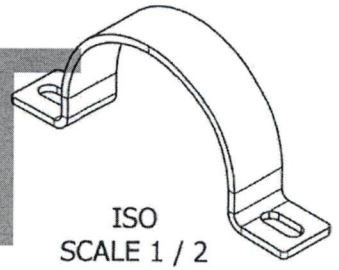
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12

FLAT PATTERN
SCALE 1 : 1



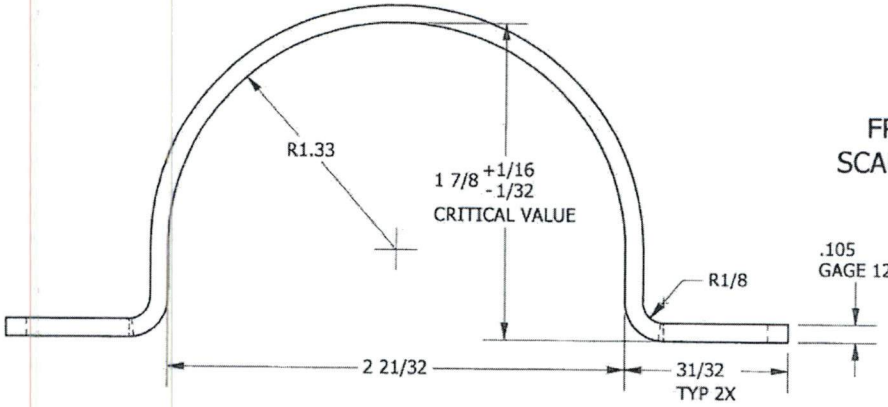


TOP
SCALE 1 : 1



ISO
SCALE 1 / 2

DRAFT



FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

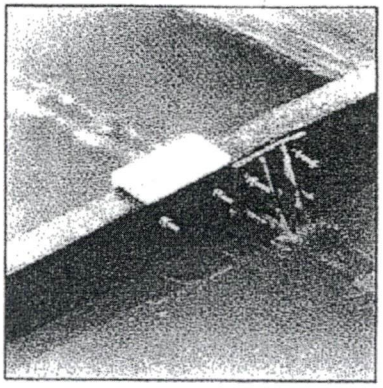
REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	0.800 WAS 0.750 - GAGE 12 WAS 14	G.LAPOINTE	M. ZGELA	2006-07-31
C	MODIFIED BEND RADIUS FROM 1/16" TO 0.120"	R.B.R.	M. ZGELA	2013-08-09

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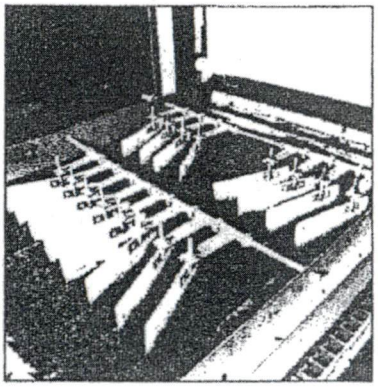
DRAFTED BY: G. LAPOINTE	DATE: 2006/04/24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW U-SHAPED CLIP
APPROVED TCCA BY: M. ZGELA	DATE: 2006/04/24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE: A SCALE: N/A	DRAWING NUMBER: 314-0006-15 REV: C SHEET: 1 OF 1

314-0008-01 revA

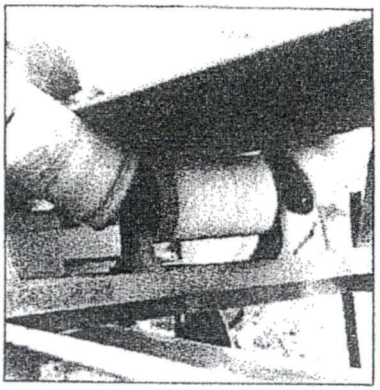
Propriétés du UHMW TIVAR®



TIVAR flight wear shoes do not corrode, and outwear shoes made from metals, urethanes and other plastics.



TIVAR is used in many OEM applications to solve abrasion and corrosion problems. The scrapers on this belt press are of TIVAR.



Conveyor rollers lined with TIVAR reduce belt wear. Wet sludge doesn't build up as on conventional rollers.

PHYSICAL PROPERTIES

PROPERTY		TEST METHOD	UNIT	TYPICAL VALUE
Specific Gravity		ASTM D-792	g/cm³	0.94
Yield Strength	@73°F	ASTM D-638	p.s.i.	3400
Ultimate Tensile Strength	@73°F	ASTM D-638	p.s.i.	6800
Break Elongation	@73°F	ASTM D-638	%	450
Yield Strength	@250°F	Stress Strain Diagram	p.s.i.	700
Ultimate Tensile Strength	@250°F	Stress Strain Diagram	p.s.i.	3300
Break Elongation	@250°F	Stress Strain Diagram	%	900
Hardness —Rockwell "R" Scale		ASTM D-785	—	64
Shore "D" Scale		ASTM D-2240	—	67
Flexural Modulus of elasticity		Bend Creep/1 min. value	p.s.i.	110,000
Shear Strength		ASTM D-732	p.s.i.	3500
Izod Impact + @23°c		ASTM D-256A	ft-lbs/in. notch	No Break
− @140°c		ASTM D-256A	ft-lbs/in. notch	No Break
Environmental Stress Cracking @F_{50}		ASTM D-1693 Mod	hrs.	6000
Water Absorption		ASTM D-570	—	NIL

COEFFICIENT OF FRICTION

UHMW Polymer has a lower coefficient of friction than glass. Together with its self-lubricating characteristics it is an ideal material for bearings, bushings, valves, wear strips or any application where sliding contact is encountered.

MATERIALS	STATIC	KINETIC	TEST METHOD
Mild Steel vs. Mild Steel	0.30-0.40	0.25-0.35	ASTM D-1894
Mild Steel vs. TIVAR-100	0.15-0.20	0.12-0.20	
TIVAR-100 vs. TIVAR-100	0.20-0.30	0.20-0.30	

DEFORMATION UNDER COMPRESSION - %							PERMANENT DEFORMATION AFTER REMOVAL OF LOAD	
TEMP °F	PSI COMPRESSION	INITIAL LOADING						
		10 MIN.	100 MIN.	1000 MIN.	1 DAY	56 DAYS	AFTER 1 MIN.	AFTER 24 HRS.
68°	282	1.5	1.7	1.8	1.9	2.4	0.9	0.6
	570	2.4	2.5	2.7	3.0	4.0	1.8	1.2
	850	3.0	4.0	4.5	5.0	5.1	2.7	1.8
	1140	4.0	5.0	6.0	7.0	7.5	3.6	2.4
	1420	5.0	6.5	7.5	8.0	9.0	4.5	2.9
	1700	7.0	7.5	8.0	10.0	11.0	5.4	3.5

CHEMICAL RESISTANCE

Hydrochloric acid (conc.) - no appreciable reaction up to 80°C

Nitric acid (20%) - less than 20% decrease in yield stress and ultimate tensile strength up to 80°C.

Sulphuric acid (50%) - no appreciable reaction up to 80°C. Less than 20% decrease in properties at 75% concentration.

Sodium hydroxide (caustic soda) - no appreciable reaction up to 80°C.

Sodium hypochlorate and most aqueous solutions of inorganic salts - no appreciable reaction up to 80°C.

Hydrocarbons and halogenated hydrocarbons -limited resistance. Each application should be evaluated.

314-0009-01 Rev A

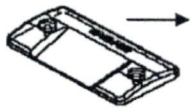
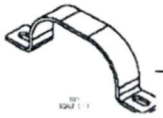
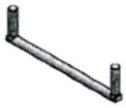
Ultra High Molecular Weight Polyethylene

UHMWPE Typical Properties

Specific Gravity, 73°F	.944	
Tensile Strength @ Yield, 73°F	3250	psi
Tensile Modulus of Elasticity, 73°F	155,900	psi
Tensile Elongation (at break), 73°F	330	%
Flexural Modulus of Elasticity	107,900	psi
Compresive Strength at 2% deformation	400	psi
Compressive Strength 10% Deformation	1200	psi
Deformation Under Load	6-8	%
Compressive Modulus of Elasticity, 73°F	69,650	psi
Hardness, Durometer (Shore "D" scale)	69	
Izod Impact, Notched @ 73°F	30	ft.lbs./in. of notch
Coefficient of Friction (Dry vs Steel) Static	.17	
Coefficient of Friction (Dry vs Steel) Dynamic	.14	
Sand Wheel Wear/Abrasion Test	95	UHMW=100
Coefficient of Linear Thermal Expansion	11.0	in/in/°F x 10^{-5}
Melting Point (Crystaline Peak)	279-289	°F
Volume Resistivity	$>10^{15}$	ohm-cm
Surface Resistivity	$>10^{15}$	ohm-cm
Water Absorption, Immersion 24 Hours	Nil	%
Water Absorption, Immersion Saturation	Nil	%
Machinability Rating	5	1 = easy, 10 = difficult
Sheet Thickness Availability (Off the Shelf)	.250 - 2.0	inches

D. Barlow 06.08.01

USAGE INTERNE SEULEMENT

	Part Name	HTC P/N	Quantities per PAIR BP4466	BP44	BP350	BP130
PADS	Pad /BP44	314-0001-01	2	2		
	Pad /BP350	314-0018-01			2	
	Pad /BP130	314-0024-01				2
HARDWARE	Plastic bag 8x10	na	2	2	2	2
	Rear Filler block/BP44	314-0022-01	2	2		
	U-Clip / BP44	314-0006-15	4	4		
	U-Clip / BP350	314-0019-15			6	
	U-Clip / BP130	314-0026-15				4
	Low U-Clip/ BP44	314-0023-15	2	2		
	Shrink on U-Clips	314-0021-01	6	6	6	6
	L-Clip/BP130	314-0025-15				4
	Iceblade	263-0005-15	4	4	8	8
	Slotted clip support	314-0007-15	0	8	12	12
	Bolt - AN4-14A	261-0001-17	4		12	12
	Bolt - AN4-15A	261-0002-17	4	8		
	Bolt - AN4-16A	261-0003-17	4	4		
	Nuts - MS20365-428 equiv: AN365-428A or MS21044N4	262-0001-17	20	20	28	28
	Washers - AN960-416	263-0001-17	32	40	40	40
	Filler block 1/4"	314-0012-01	4	4	12	
	Filler block 1/16"	314-0014-01	16	4		
	Filler block 1/8"	314-0015-01	4	4		12
DOCUMENTS	Plastic bag 9 x12	na	1	1	1	1
	Document - MDL/BP44	HTC-MDL-BP-R44-1000	1	1		
	Document - INST/BP44	314-0011-00	1	1		
	Document - MDL/BP350	HTC-MDL-BP-AS350-1000			1	
	Document - INST/BP350	314-0018-01-S			1	
	Document - MDL/BP130	HTC-MDL-BP-EC130-1000				1
	Document - INST/BP130	314-0031-00				1
	Can STC	na	1	1	1	1
	US STC	na	1	1	1	1
PACKAGING	Box / BP44 16.5x13x3.5"	na	1	1		
	Box / BP350 & BP130 24x21x3"	na			1	1
	Label /BP44	273-0001-04	1	1		
	Label /BP350 & BP130	273-0002-04			1	1

Nature of modifications: New format, added BP13

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Periodic Inspection Schedule	p.6
300 Hour or Yearly Inspection Details	p.6
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Annex A (BearPaw Assembly Drawing)
Annex B (BearPaw Pad Allowable Damage Drawing)

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INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw BP44 on the Robinson R44 and R66 helicopters..

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table 1:

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	877 A, Alphonse-Desrochers, St-Nicholas, Levis, Quebec, Canada, G7A 5K6	Tel:1 (418) 561-4512 Fax:1 (418) 836-4575 info@helitowcart.com

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Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

Table 2 – Robinson Helicopter Effectivity

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0002, 0004 thru 9999, except 1140	Transport Canada: H-97 FAA: H11NM
R44 II	1140, 10001 and subsequent	Transport Canada: H-97 FAA: H11NM
R66	0002 and subsequent	Transport Canada: H-111 FAA: R00015LA

Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

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INSTALLATION

BearPaw Installation

Reference Documentation:

[1] Robinson R44 – Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
[2] Robinson R66 – Maintenance Manual & Instruction for Continued Airworthiness. RTR660.
[3] Annex A – BearPaw Assembly Drawings (112-0001-00)

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] or [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

Step 2: Ice Blade Installation (Optional)

- Install the two ice blades (314-0005-15) under BearPaw pad as per drawing 112-0001-00, ref [3];
- Insert washer (263-0001-17 / AN960-416) through threaded part of ice blade and secure with nut (262-0001-17 / AN365-428A).

Step 3: BearPaw Preparation

- Insert washers (263-0001-17 / AN960-416) through all six bolts: 2x(261-0001-17 / AN4-14A), 2x(261-0002-17 / AN4-15A) & 2x(261-0003-17 / AN4-16A) as per drawing 112-0001-00, ref [3];
- Insert all six bolts and washers through BearPaw pad;
- Insert rear filler block (314-0014-01) at aft of BearPaw;
- On each side at **front** of BearPaw, insert one 1/4" filler block (314-0012-01) and one 1/16" filler block (314-0014-01);
- On each side at **center** of BearPaw, insert one 1/8" filler block (314-0015-01) and one 1/16" filler block (314-0014-01);
- On each side at **aft** of BearPaw, insert **two** 1/16" filler blocks 2x(314-0014-01);

  Note: Except for the rear filler block (314-0022-01) the use of filler blocks mentioned above may be increased, decreased, replaced or complemented by the use of washers (263-0001-17 / AN960-416). The use of bolts mentioned above may be replaced by longer or shorter AN4 bolts as required.

Step 4: BearPaw Installation

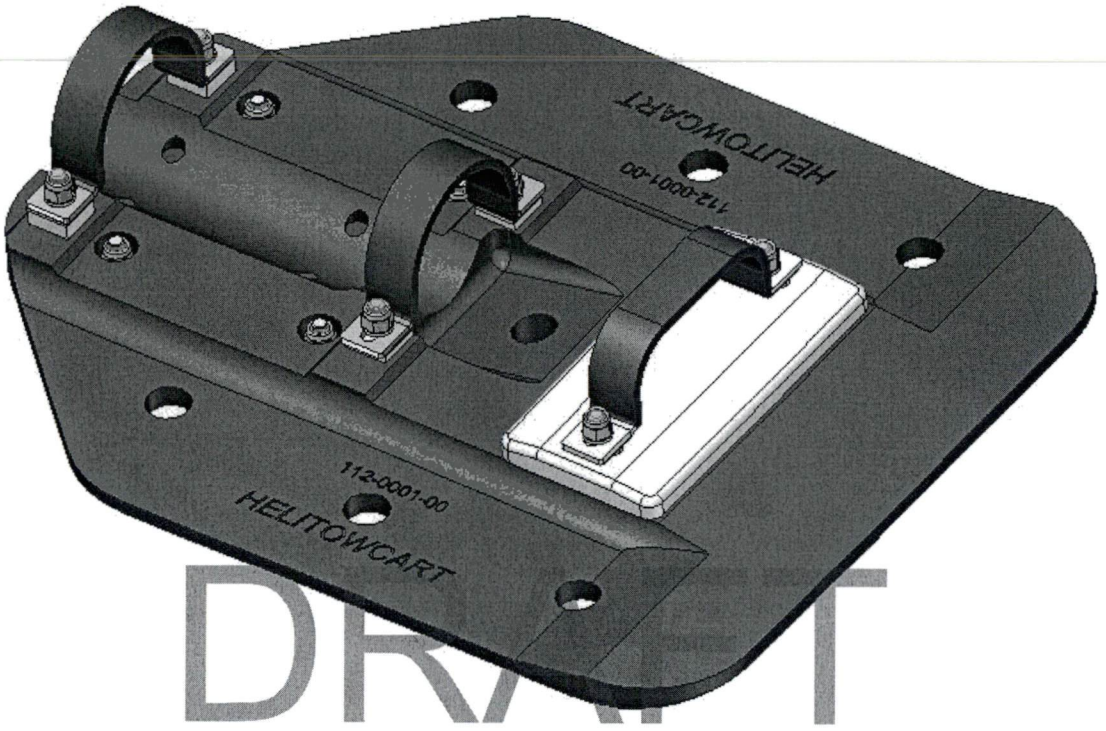
- Position the BearPaw under skid at the aft intersection with the cross tube with narrow edge pointing forward.
- Insert both U-Shaped Clips (314-0006-15) through bolts at front and center of BearPaw as per drawing 112-0001-00, ref [3];
- Insert the Low U-Shaped Clip (314-0023-15) through bolts at rear of BearPaw;
- Insert washer (263-0001-17 / AN960-416) & screw nuts (262-0001-17 / AN365-428A) for a tight fit. Maximum torque on nuts is 60 in.-lb.
- Adjust rear filler block (314-0022-01) position using slotted holes to remove all gap between rear filler block and skid.
- Ensure BearPaw holds strongly into position. If required, 1/16" filler blocks (314-0014-01) can be removed to increase tightening.

Step 5: Final Step

- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

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DRAFT

Figure 1 – BearPaw Model BP44/BP66 (112-0001-00)

BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] and [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);

Step 2: BearPaw Removal

- Remove nuts (262-0001-17 / AN365-428A), washers (263-0001-17 / AN960-416), U-Shaped Clips (314-0006-15) and Low U-Shaped Clip (314-0023-15);
- Remove BearPaw pad (314-0001-01);
- Inspect skid tubes to confirm serviceability;
- Re-install aft wearshoe with screws as per reference [1] or [2];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

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Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data – R44, R44 II and R66 helicopters

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	10.0 lbs 4.54 kg	0.0 in. (0.00 m)	0.0 lbs-in (0.0 kg-m)	128.5 in (3.26 m)	1285 lbs-in (14.8 kg-m)

Parts Lists

The Helitowcart BearPaw detailed part list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Name
BearPaw Model BP44	**1**	**112-0001-00**	**BearPaw Assembly**
BearPaw pad	1	314-0001-01	BearPaw – Pad
Filler blocks rear	1	314-0022-01	BearPaw – Filler block Rear
Filler blocks 1/4"	2	314-0012-01	BearPaw – Filler block 1/4"
U-Shaped Clips	2	314-0006-15	BearPaw – U Shaped Clips
Filler blocks 1/16"	8	314-0014-01	BearPaw – Filler block 1/16"
Filler blocks 1/8"	2	314-0015-01	BearPaw – Filler block 1/8"
Low U-Shaped Clips	1	314-0023-15	BearPaw – Low U Shaped Clips
Washers	12	263-0001-17	Washer (AN960-416)
Nuts	6	262-0001-17	Nylon Nut (AN365-428A)
Bolts	2	261-0001-17	Hex Bolt (AN4-14A).
Bolts	2	261-0002-17	Hex Bolt (AN4-15A).
Bolts	2	261-0003-17	Hex Bolt (AN4-16A).
IceBlade Option Model OIB	**2**	**314-0005-15**	**IceBlade Assembly**
Nuts	4	262-0001-17	Nylon Nut (AN365-428A)
Washers	4	263-0001-17	Washer (AN960-416)

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INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured;
- Check that BearPaws are free from visible damage;
- If damage is found, verify allowable damage according to:
  Table 5 – Tolerances for Cracks & Wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01 page 3 of 3).

Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 300 flying hours or yearly whichever comes first;
- The Helitowcart BearPaw can be inspected concurrently with the R44/R66 landing gear inspection;
- Recommended tolerance for performance of inspection is +/- 10% of the 300 hours period.;
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

DRAFT

300 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal";
- Inspect all parts for damage & wear. See table & figure below for allowable damage;
- Replace all damaged parts;
- Replace parts worn beyond the tolerances indicated below;
- See Tolerances for cracks & wear:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01 page 3 of 3).

Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,050	
D	N/A	N/A	No cracks allowed in zone D
E	N/A	N/A	No cracks allowed in zone E

Overhaul Requirements

- Not applicable for the designated application of this device.

Tel: 1-418-561-4512, Fax: 1-418-836-4575, 877 A Alphonse-Desrochers, St-Nicolas, Levis, QC, Canada, G7A 5K6.
www.helitowcart.com info@helitowcart.com

REVISIONS & APPROVAL

Revisions

Date	Rev	Nature of Revisions
August 09, 2013	E	Addition of Robinson R66 helicopter, removal of pocket version of the BearPaw and removal of revision letters from part numbers.
April 15, 2010	D	Addition of a rear U shaped clip in the Streamline BearPaw Pad configuration.
October 22, 2009	C	Introduction of new streamline BearPaw Pad configuration as alternate.
September 7, 2006	B	- Added filler blocks and heat shrink to product list. - Modified recommended bolt models (lengthened) - Revised inspection requirements from 100 hour to 300 hour intervals. - Identification of the IceBlade assembly as an optional feature.
June 12, 2006	A	Initial issue

Approval

DRAFT

Internal Approval :		
Helitowcart inc.	Lucien Barbeau, President	August 09, 2013
External Approval :		
Transport Canada	Mirko Zgela, DAR #310	August 09, 2013

Annex A

See: BearPaw Assembly, drawing no. 112-0001-00.

Annex B

See: BearPaw Allowable Damage Drawing, drawing no. 314-0001-01 page 3 of 3.

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Annex A
BearPaw Assembly, Drawing no. 112-0001-00

DRAFT

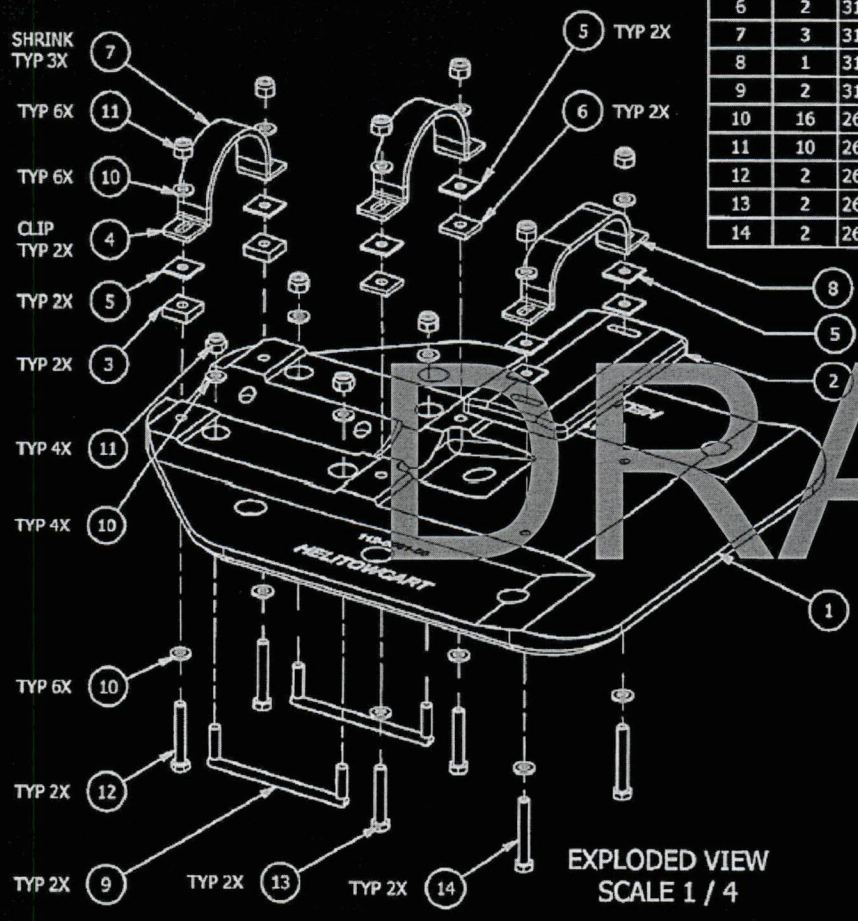
Tel: 1-418-561-4512, Fax: 1-418-836-4575, 877 A Alphonse-Desrochers, St-Nicolas, Levis, QC, Canada, G7A 5K6.
www.helitowcart.com info@helitowcart.com

NOTES:

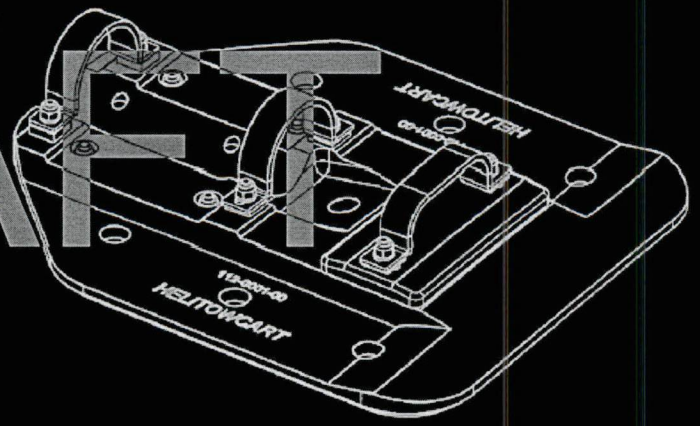
1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	8	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	314-0016-05	BEARPAW - SHRINK (FIT-221)	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	STEEL	---	---
10	16	263-0001-17	WASHER (AN960-416)	STEEL	---	1/4
11	10	262-0001-17	NYLON NUT (AN365-428A)	STEEL	---	1/4
12	2	261-0002-17	HEX BOLT (AN4-15A)	STEEL	QQ-P-416A	1/4-28
13	2	261-0001-17	HEX BOLT (AN4-14A)	STEEL	---	---
14	2	261-0003-17	HEX BOLT (AN4-16A)	STEEL	QQ-P-416A	1/4-28



EXPLODED VIEW
SCALE 1 / 4



ASSEMBLED
SCALE 1 / 4

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE	M. ZGELA	2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006/04/25
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006/04/25
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ASSEMBLY

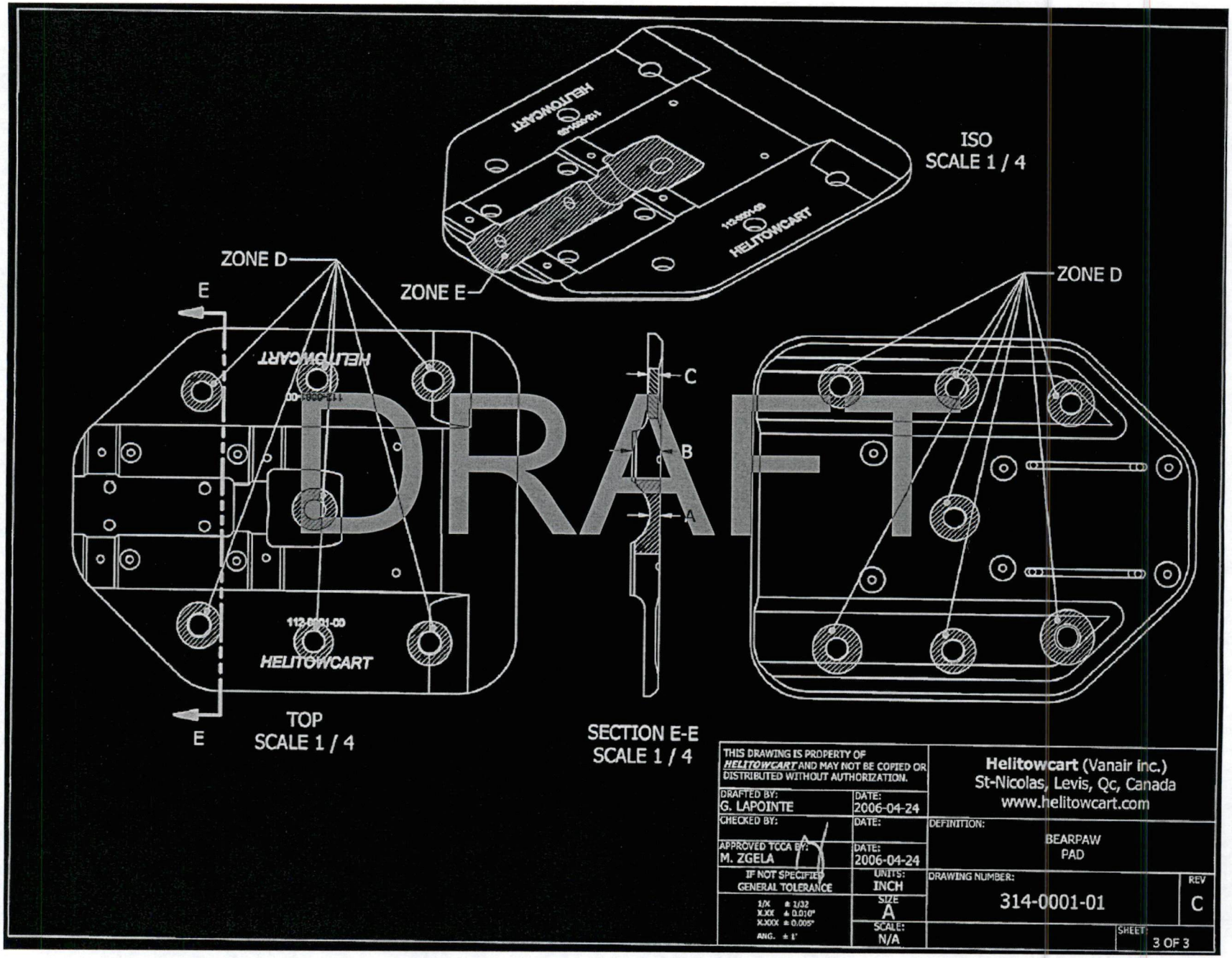
DRAWING NUMBER: 112-0001-00 — REV: F

SHEET: 1 OF 1

Annex B
BearPaw Allowable Damage Drawing, Drawing no. 314-0001-01-B, Page 3 of 3

DRAFT

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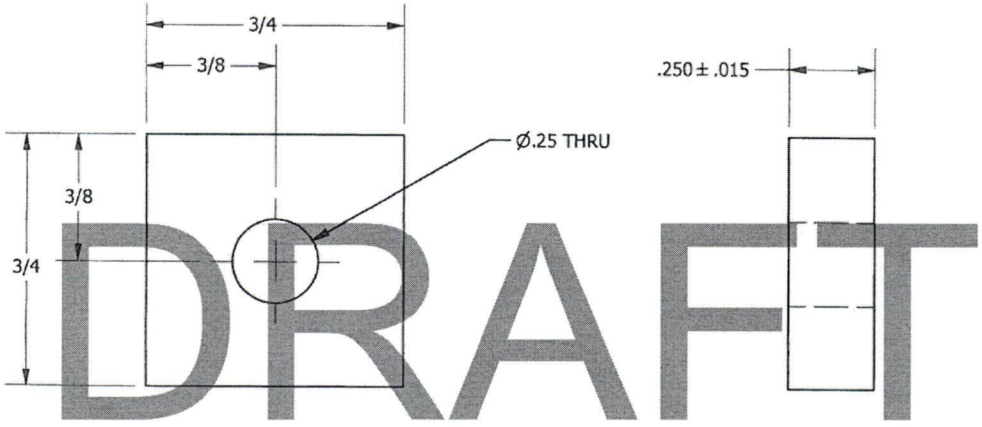
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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 .XX ± 0.010" .XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0001-01 REV C SHEET: 3 OF 3

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.



DRAFT

FRONT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-08-08
B	HOLE 0.25", REMOVED REV. LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-09-06
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-08-08
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

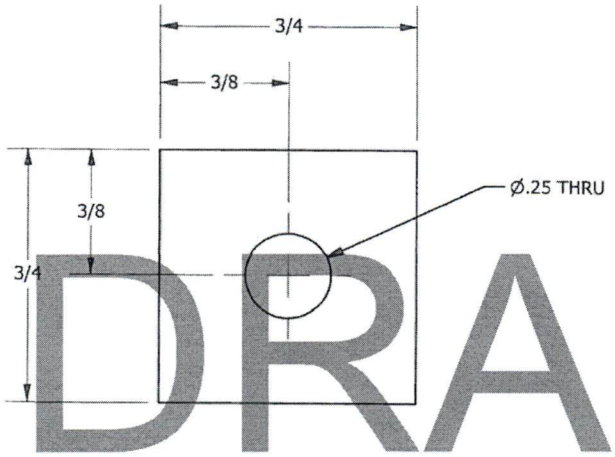
Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW FILLER BLOCK 1/4"
DRAWING NUMBER: 314-0012-01
REV: B
SHEET: 1 OF 1

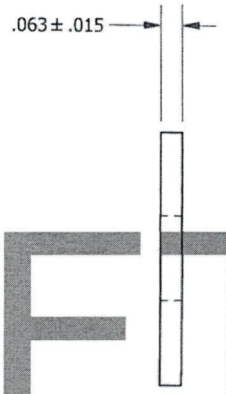
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.



FRONT
SCALE 2 : 1



RIGHT
SCALE 2 : 1

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-09-06
B	HOLE: 0.25", THICKNESS: 0.063", REMOVED REV. LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-09-06
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APPROVED TCCA BY: M. ZGELA — DATE: 2006-09-06
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

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DEFINITION: BEARPAW FILLER BLOCK 1/16"

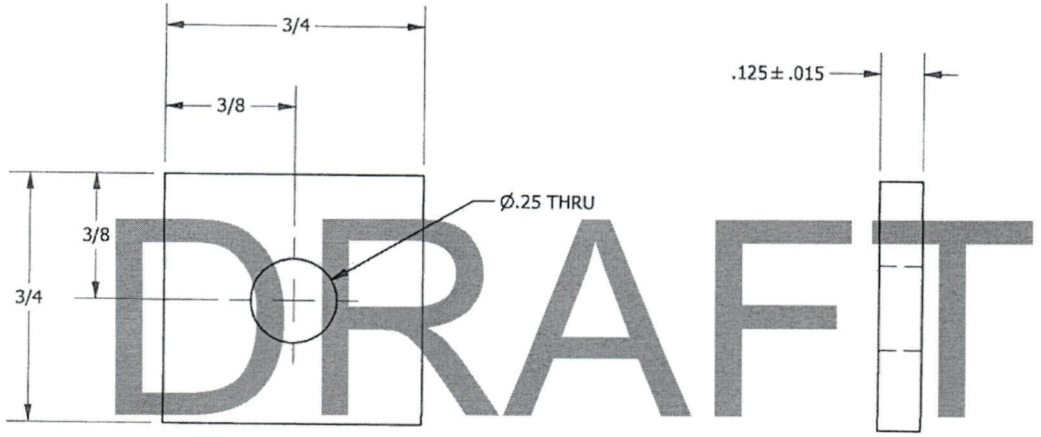
DRAWING NUMBER: 314-0014-01 — REV: B

SHEET: 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.



DRAFT

FRONT
SCALE 2 : 1

RIGHT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-09-06
B	0.25" HOLE, REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-09-06
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-09-06
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

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DEFINITION: BEARPAW FILLER BLOCK 1/8"

DRAWING NUMBER: 314-0015-01 — REV: B

SHEET: 1 OF 1

314-0017-05 RevA

MIL-DTL-23053/5C,
CLASS 1, 2
UL STANDARD 224
CSA STANDARD 198
RoHS COMPLIANT

FIT® Preferred Heat Shrink Products
GENERAL PURPOSE, IRRADIATED POLYOLEFIN
FIT®-221

Alpha Part No. And Size	Minimum Supplied I.D. Inches	mm	Maximum Recovered I.D. Inches	mm	Nom. Recovered Wall Thickness Inches	mm	Standard Packages 4 Ft. Lengths Total Ftg.	Spools Tot. Ftg.	Spools Tot. Ftg.	Spools Tot. Ftg.	No. Cut Pieces 6 Inch	No. Cut Pieces 1/2" or 1"
FIT-221-3/64	0.046	1,17	0.023	0,58	0.016	0,41	100	1000			40	1000
FIT-221-1/16	0.063	1,60	0.031	0,78	0.017	0,43	100	1000	100	70	36	1000
FIT-221-3/32	0.093	2,36	0.046	1,17	0.020	0,50	100	500	100	65	32	1000
FIT-221-1/8	0.125	3,18	0.062	1,58	0.020	0,50	100	500	100	60	28	1000
FIT-221-3/16	0.187	4,75	0.093	2,36	0.020	0,50	100	500	100	50	24	1000
FIT-221-1/4	0.250	6,35	0.125	3,18	0.025	0,63	100	250	100	40	20	1000
FIT-221-3/8	0.375	9,53	0.187	4,75	0.025	0,63	100	200	50	35	16	1000
FIT-221-1/2	0.500	12,70	0.250	6,35	0.025	0,63	20	150	50	32	14	-
FIT-221-3/4	0.750	19,10	0.375	9,53	0.030	0,76	20	250	50	24	12	-
FIT-221-1	1.000	25,40	0.500	12,70	0.035	0,88	20	250	50	16	8	-
FIT-221-1-1/2	1.500	38,10	0.750	19,10	0.040	1,02	20	125	-	-	5	-
FIT-221-2	2.000	50,80	1.000	25,40	0.045	1,16	20	125	-	-	3	-
FIT-221-3	3.000	76,20	1.500	38,10	0.050	1,27	8	100	-	-	2	-
FIT-221-4	4.000	101,60	2.000	50,80	0.055	1,40	8	50	-	-	1	-

115

SPOOL COLOR AVAILABILITY CHART

FIT-221 Tubing Size	Put-Up	Colors
3/64"	1000'	Black, Clear
1/16"	1000'	All Colors*
	100'	Black, Clear
	70'	All Colors
3/32"	500'	All Colors
	100'	Black, Clear
	65'	All Colors
1/8"	500'	All Colors
	100'	Black, Clear
	60'	All Colors
3/16"	500'	All Colors
	100'	Black, Clear
	50'	All Colors
1/4"	250'	All Colors
	100'	Black, Clear
	40'	All Colors

FIT-221 Tubing Size	Put-Up	Colors
3/8"	200'	All Colors
	50'	Black, Clear
	35'	All Colors
1/2"	150'	All Colors
	50'	Black, Clear
	32'	All Colors
3/4"	250'	All Colors
	50'	Black, Clear
	24"	All Colors
1"	250"	All Colors
	50"	Black, Clear
	16"	All Colors
1-1/2"	125'	Black, Clear
2"	125'	Black, Clear
3"	100'	Black, Clear
4"	50'	Black, Clear

*All colors include black, white, clear, red, yellow, blue, green

SEE PAGE 116
FOR
ECONOMICAL BULK PACKAGES!

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D. Bailey 2006.09.06

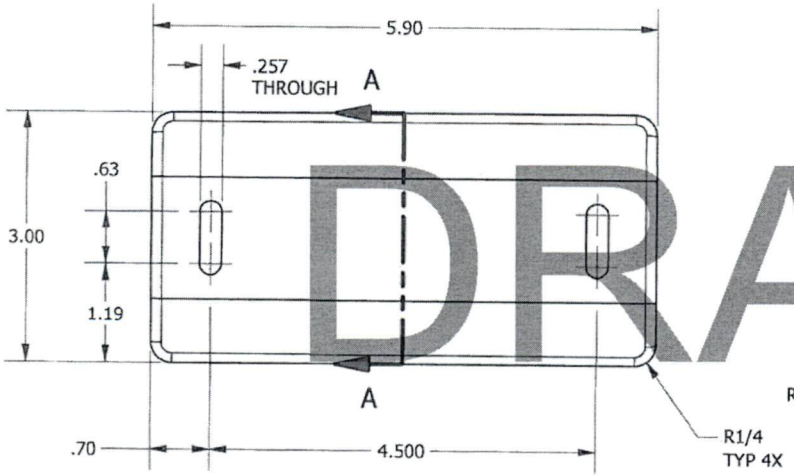
alpha

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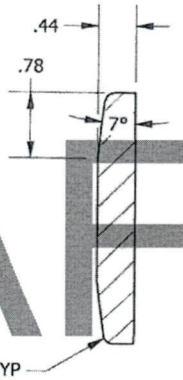
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX. ENSURE EDGES ARE SMOOTH.

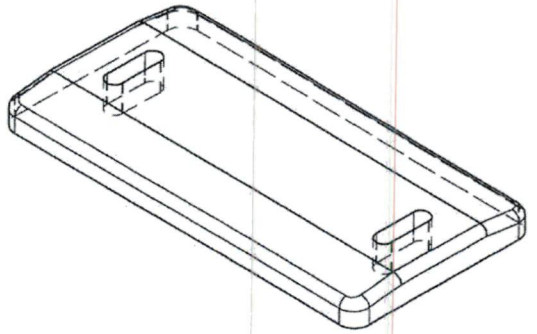
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.



TOP
SCALE 1 / 2



SECTION A-A
SCALE 1 / 2



ISO
SCALE 1 / 2

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2009-10-22
B	MODIFICATION OF ANGLE AND ADDITION OF SLOTTED HOLES	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER	DATE: 2009-10-22	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2009-10-22	
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°	UNITS: INCH	
	SIZE: A	
	SCALE: N/A	

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION:
BEARPAW
FILLER BLOCK REAR

DRAWING NUMBER: 314-0022-01 REV: B

SHEET: 1 OF 1

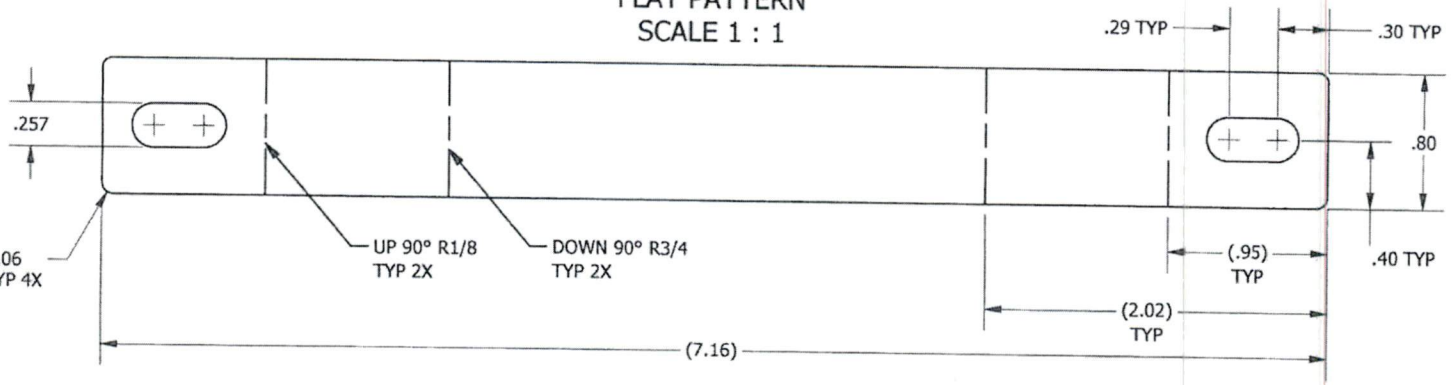
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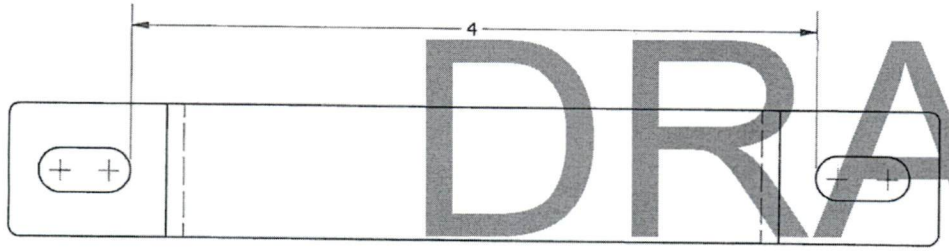
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

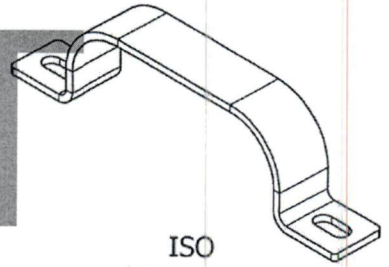
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12

FLAT PATTERN
SCALE 1 : 1

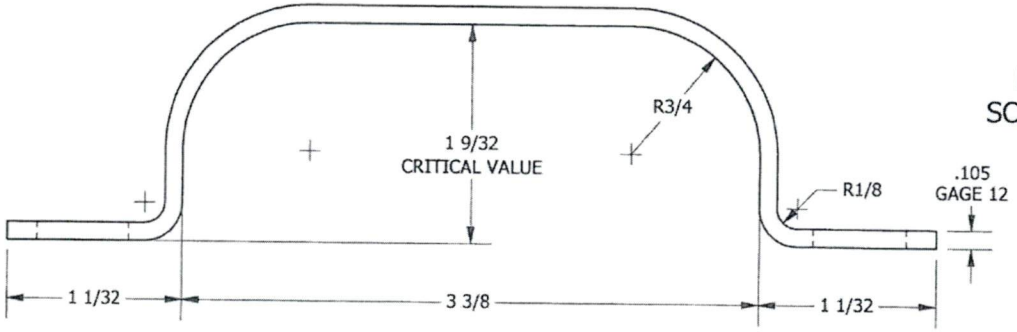




TOP
SCALE 1 : 1



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2010-04-15
B	MODIFIED BEND RADIUS (R3/4) AND REDUCED HEIGHT	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER — DATE: 2010-04-15
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2010-04-15
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW LOW U-SHAPED CLIP

DRAWING NUMBER: 314-0023-15 — REV: B

SHEET: 1 OF 1

Aviatech TECHNICAL SERVICES Inc.
2595 rue Saint-Olivier
Trois-Rivières, Québec
G9A 4G1

Engineering Order

Title: Installation of all BearPaw BP44 Configurations on R66 helicopters	
EO Number: ATS-0709-EO-1000 Rev NC	**Date issued:** August 09, 2013
Customer: Helitowcart	**Project number:** A2007-09

A/C INFORMATION

A/C Effectivity: R44, R44 II & R66	**Registration / Serial#:** N/A

SIGNATURE

Prepared by:	Mechanical:	Electrical:	Verified:	Approved:
R. Berthelot (OIQ #5033095)	R. Berthelot (OIQ #5033095)	N/A	J.-F. Lemire (OIQ #141774)	Mirko Zgela (DAR #310)

REFERENCE DOCUMENTS

[1] AAC-STR-BP-R44-1000, "Structural Substantiation – Helitowcart Inc. BearPaw Model BP44", Rev NC dated July 4, 2006.
[2] HTC-TM-BP-R44-1000, "Structural Substantiation – BearPaw Streamline BP44", Rev NC dated October 22, 2009.
[3] ATS-0709-TM-1000, "Structural Substantiation – Addition of R66 Helicopter", Rev NC dated August 09, 2013.

DRAFT

1. Background

Helitowcart has improved its BearPaw design over the years by passing from a pocket configuration with two clips to a longer streamline configuration with two clips and then with three clips. These design changes are shown on Figure 1.

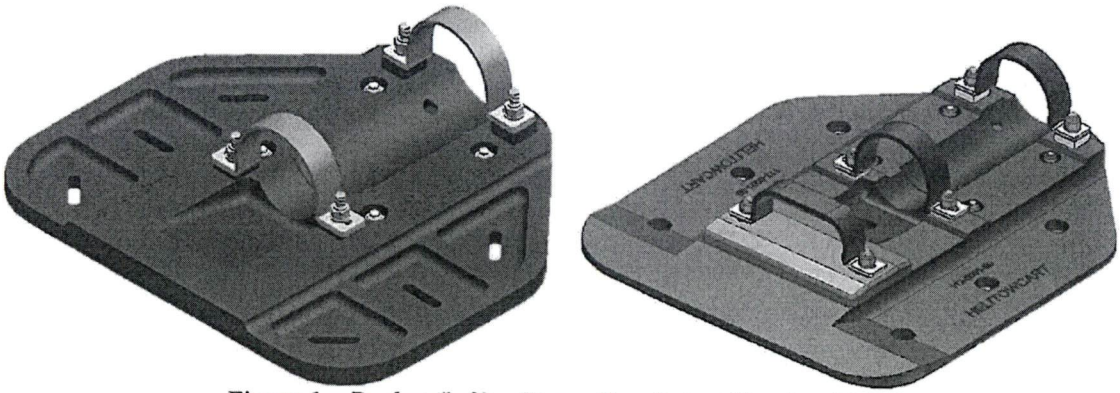


Figure 1 – Pocket (left) – Streamline, Latest Version (right)

Aviatech TECHNICAL SERVICES inc.

2595 rue Saint-Olivier
Trois-Rivières, Québec
G9A 4G1

2. Structural Compliance

Structural compliance of BearPaw BP44 installation on the R44 and R44 II helicopters was demonstrated in reference [1] for the pocket configuration and in reference [2] for the streamline configuration with two clips.

Structural compliance of BearPaw BP44 installation on the R66 helicopter was demonstrated in reference [3] for the streamline configuration with two clips (the third clip was neglected). This two clip configuration is the most critical since the streamline configuration with three clips and the pocket configurations are stronger.

Therefore, all BearPaw configurations comply with FAR 27 structural requirements and can therefore be installed on the R66 helicopter.

3. Installation on the R66 Helicopter

Helicopter skids are identical for the R44, R44 II and R66 helicopters. Therefore, installation of BearPaw BP44 on the R66 helicopter is to be performed with the original installation instructions provided with the BearPaw at the time of acquisition (Table 1).

Table 1 – Installation Instructions for all BearPaw Configurations

Drawing	Part Number	Description	Installation Instructions
VNR083 Rev R05	112-0001-00-C	Pocket – Two Clips	314-0011-00-B Rev B
112-0001-00-D Rev D	112-0001-00-D	Streamline – Two Clips	314-0011-00-A Rev C
112-0001-00-E Rev E	112-0001-00-E	Streamline – Three Clips	314-0011-00 Rev D
112-0001-00 Rev F	112-0001-00	Streamline – Latest Version	314-0011-00 Rev E

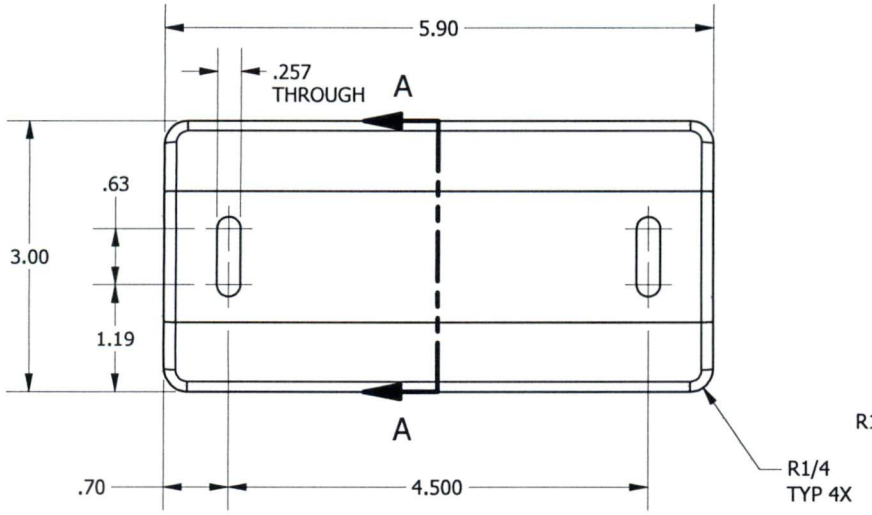
DRAFT

NOTES:

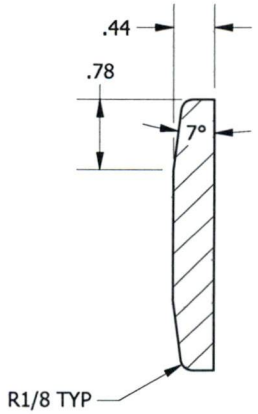
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX. ENSURE EDGES ARE SMOOTH.

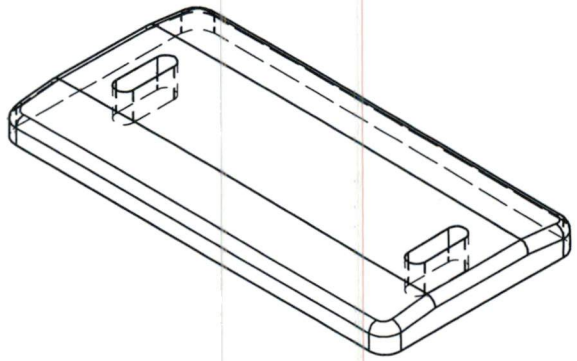
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0022	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.



TOP
SCALE 1 / 2



SECTION A-A
SCALE 1 / 2



ISO
SCALE 1 / 2

2013 09 26

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2009-10-22
B	MODIFICATION OF ANGLE AND ADDITION OF SLOTTED HOLES	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER	DATE: 2009-10-22	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW FILLER BLOCK REAR
APPROVED TCCA BY: M. ZGELA	DATE: 2009-10-22	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0022-01 — REV: B
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	SCALE: N/A	SHEET: 1 OF 1

314-0022-01-B

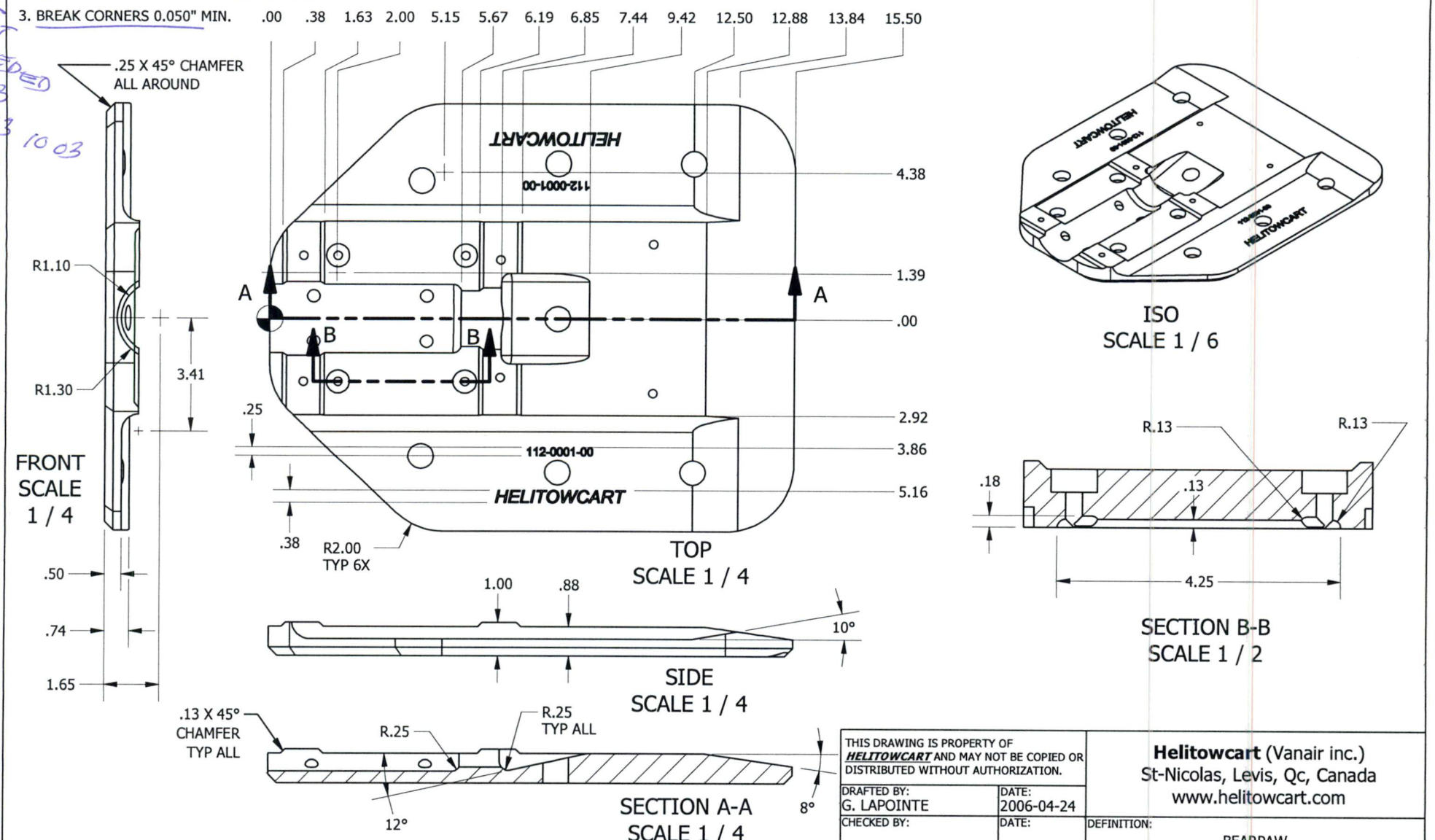
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX.

3. BREAK CORNERS 0.050" MIN.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	31[redacted]01-01	BEARPAW - PAD	UHMW	---	1" THK.



REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	ADDITION OF STREAMLINE PAD CONFIGURATION	S. BERNIER	M. ZGELA	2009-10-22
C	MODIFIED ENGRAVING, CHANGED ZONES FOR DAMAGE TOLERANCE	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	
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	SCALE: N/A	

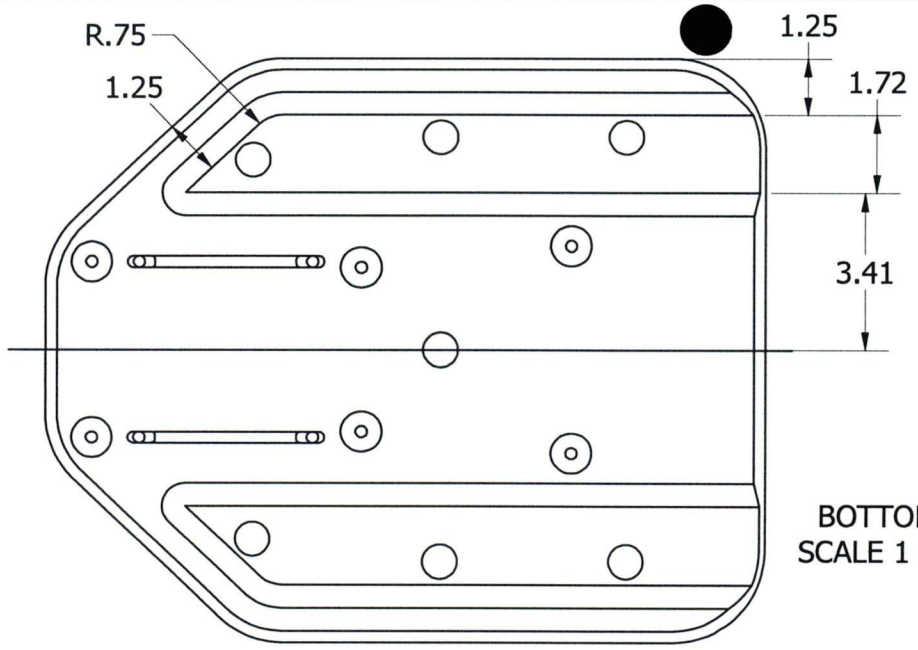
Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW PAD

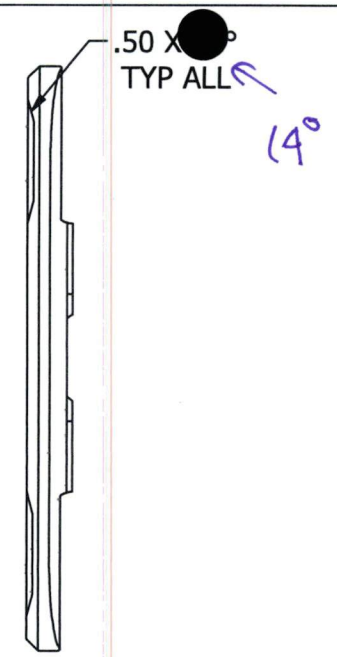
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SHEET: 1 OF 3

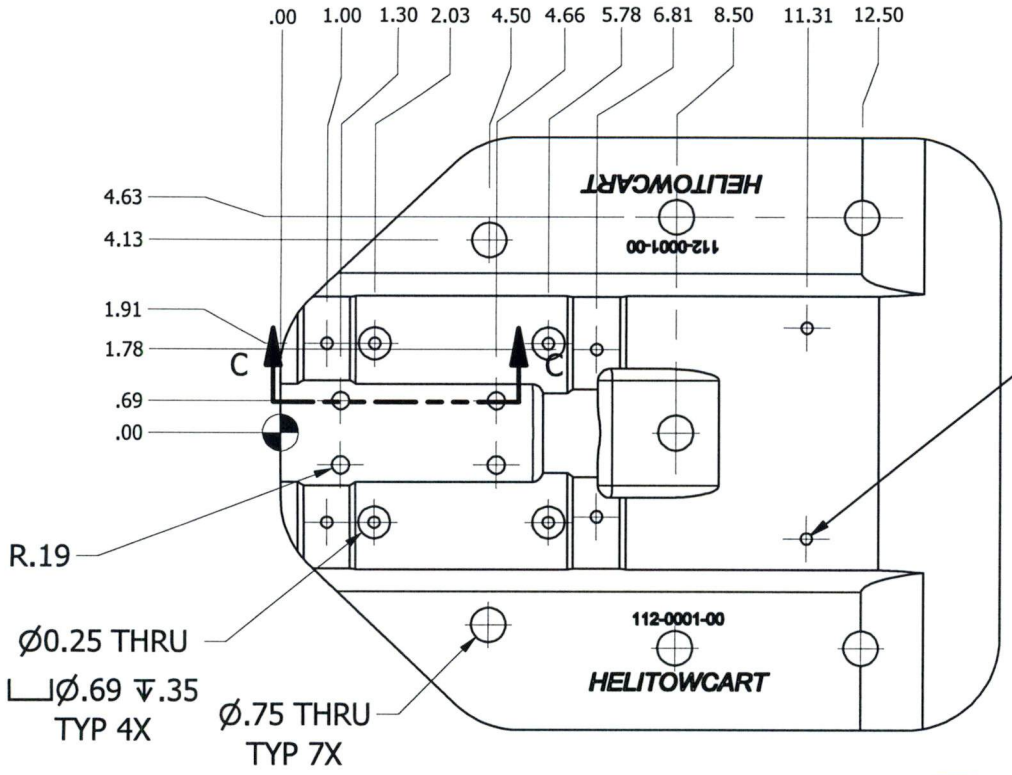
314-0001-01 C



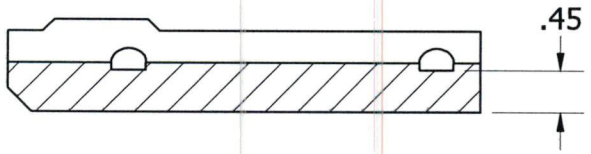
BOTTOM
SCALE 1 / 4



RIGHT
SCALE 1 / 4

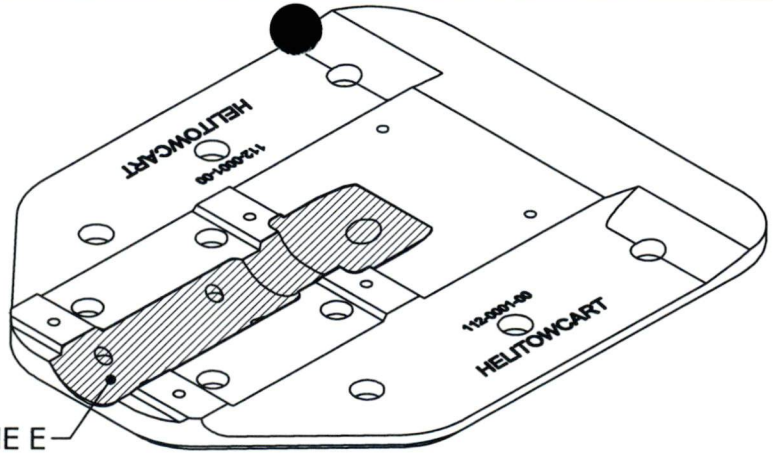


TOP
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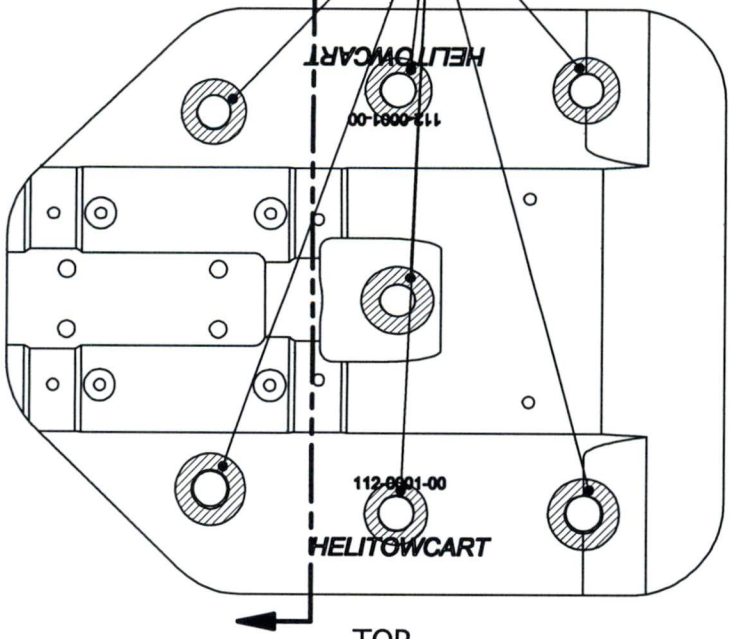
SECTION C-C
SCALE 1 / 2

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0001-01 REV: C
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
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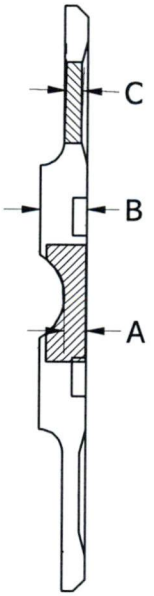


ISO
SCALE 1 / 4

ZONE D
E
ZONE E

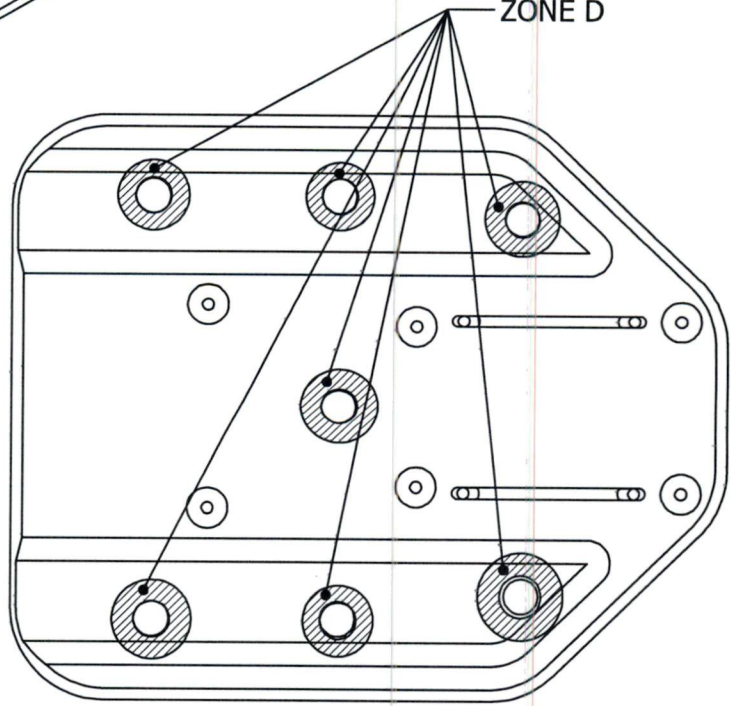


E
TOP
SCALE 1 / 4



SECTION E-E
SCALE 1 / 4

ZONE D



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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0001-01 REV C
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE A SCALE: N/A	SHEET: 3 OF 3

Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: September-27-13 9:21 AM
To: Nathalie Barbeau
Cc: Jean-Francois Lemire; Mirko Zgela
Attachments: 314-0006-15 Rev C (DRAFT).pdf; 314-0023-15 Rev B (DRAFT).pdf; 112-0001-00 Rev F (DRAFT).pdf

Categories: Cat 1 - Needs important Action

Bonjour Nathalie,

Voir les mises en plan demandées en pièce jointe.

À noter : **Ces mises en plan sont préliminaires** puisque les mises en plan finales doivent être signées par Mirko Zgela. La mise en plan d'installation (112-0001-00) ne peut pas être utilisée pour effectuer l'installation sur le R66 et est seulement envoyée à titre informatif pour que tu puisses préparer les packages de boulons et de filler blocks.

Aussi, ne pas oublier que les boulons des Iceblades sont pris en compte dans la liste de matériel du dessin 112-0001-00.

En espérant que ça t'aide!

Renaud

Renaud Berthelot-Richer, ing. jr.
CONCEPTION STRUCTURE AÉRONAUTIQUE
AERONAUTICAL STRUCTURE DESIGN
T: 819.601.8049 #211
renaudb@ats-ast.com

Aviatech
SERVICES TECHNIQUES inc
TECHNICAL SERVICES inc

2595 St-Olivier
Trois-Rivières, Qc, Canada
G9A 4G1

F: 819.377.7928
www.ats-ast.com

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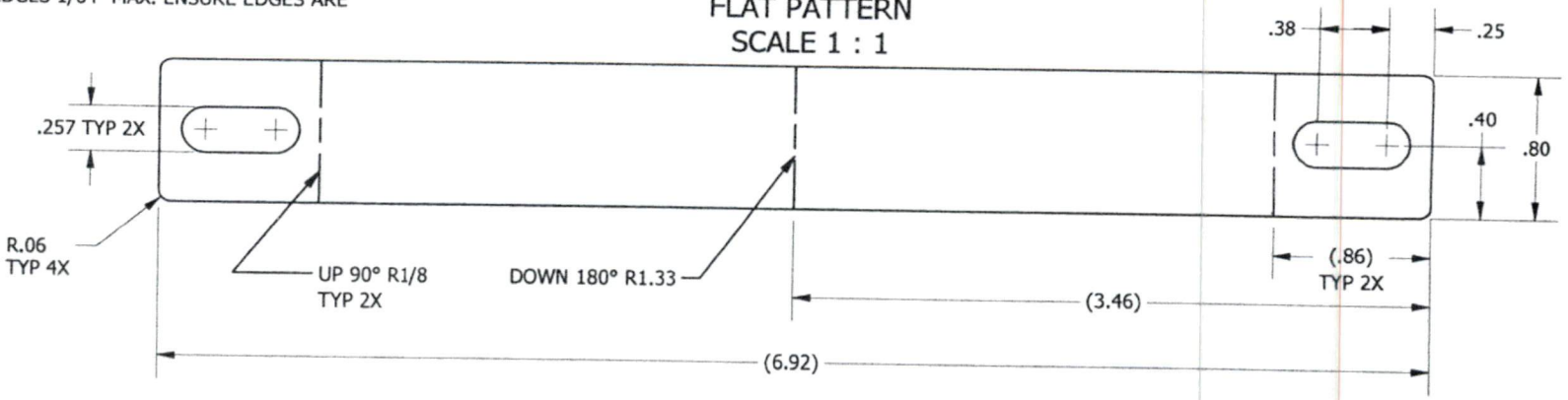
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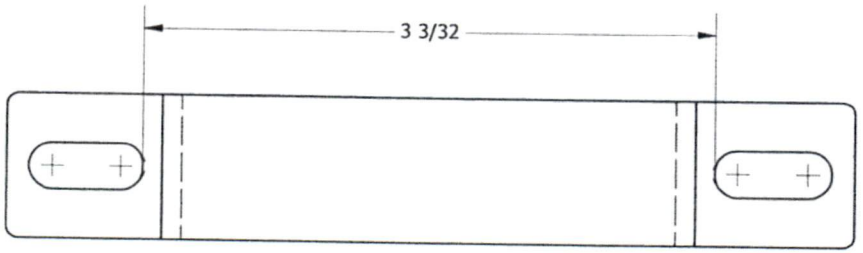
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2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

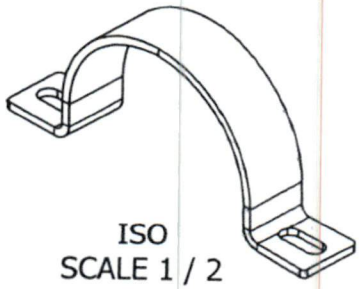
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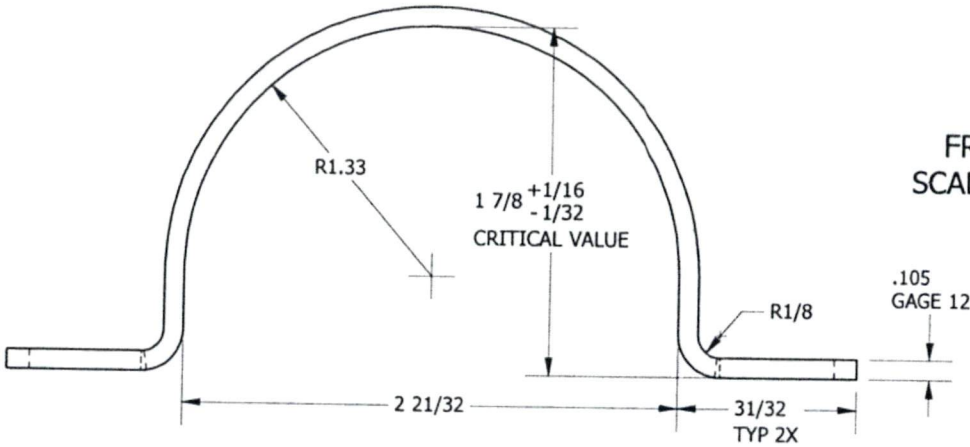




TOP
SCALE 1 : 1



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	0.800 WAS 0.750 - GAGE 12 WAS 14	G.LAPOINTE	M. ZGELA	2006-07-31
C	MODIFIED BEND RADIUS FROM 1/16" TO 0.120"	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006/04/24	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2006/04/24	
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°	UNITS: INCH	
	SIZE: A	
	SCALE: N/A	

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION:
BEARPAW
U-SHAPED CLIP

DRAWING NUMBER: 314-0006-15

REV: C

SHEET: 1 OF 1

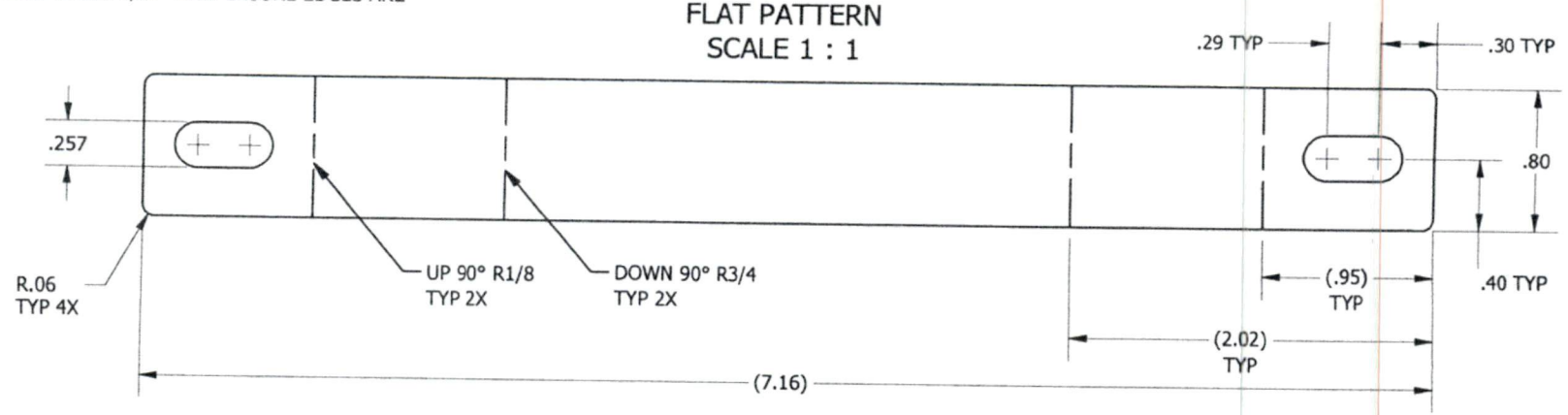
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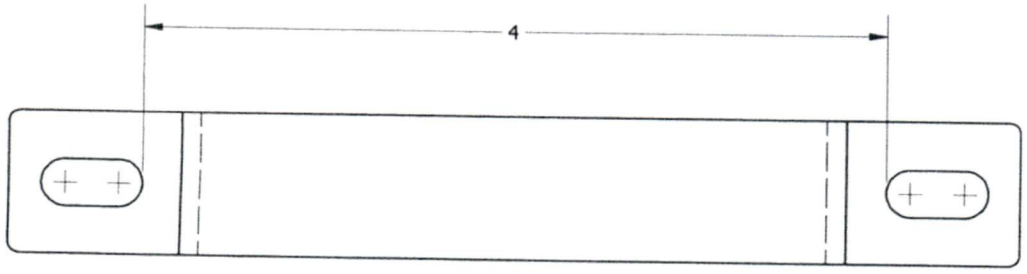
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

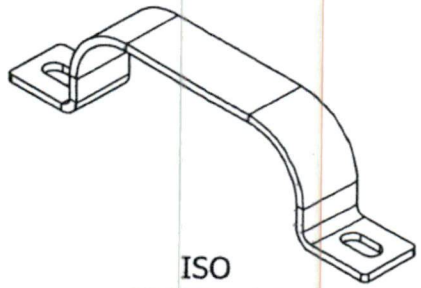
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FLAT PATTERN
SCALE 1 : 1

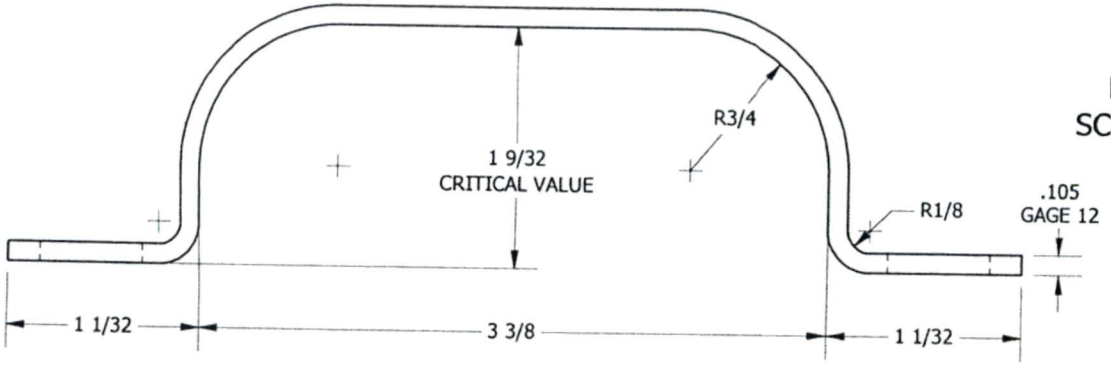




TOP
SCALE 1 : 1



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2010-04-15
B	MODIFIED BEND RADIUS (R3/4) AND REDUCED HEIGHT	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER	DATE: 2010-04-15	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW LOW U-SHAPED CLIP
APPROVED TCCA BY: M. ZGELA	DATE: 2010-04-15	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0023-15 — REV: B
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 1 OF 1

ECO #7 BP4466
HISTORIQUE DU PROCESSUS DE MAJ DE TOUS LES DOCS

Master Document Lis
Helitowcart

Robinson R44/R66 Helicopters
Installation of BearPaw Model BP44

DRAFT

Report: HTC-MDL-BP-R44-1000 (Rev D)

APPROVED BY: _____ DATE: 2013-08-28

Mirko Zgela
Design Approval Representative DAR #310

Tel 1-418-561-4512, Fax: 1-418-836-4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

T.Q. soumis à TC

Revision	Revision Date	Revision of Entry	Entered by
D	2013-08-28	Addition of Robinson R66 helicopter to the fleet eligibility list for BearPaw BP44 and product refinement.	R. Berthelot
C	2010 04 15	Addition of a rear U shaped clip in the streamline BearPaw Pad configuration	S. Bernier
B	2009 10 22	Introduction of new streamline BearPaw Pad configuration as alternate	S. Bernier
A	2006 09 07	Drawings are added to include the provision of shims during the installation.	N. Barbeau

DRAFT

Tel 1-418-561-4512, Fax: 1-418-836-4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

1.0 MASTER DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-R44-1000	Compliance Plan - Robinson R44/R66 Helicopters -Installation of Bear Paw Model BP44	A	DAR 310	Aug 28, 2013
314-0011-00	BearPaw Model BP44 – Installation Instructions - R44/R66	E	DAR 310	Aug 9, 2013
ATS-0709-FTP-1000	R66 BearPaw Installation - Flight Test Plan/Report	NC	DAR 310	Aug 27, 2013
ATS-0709-TM-1000	Structural Substantiation – Addition of R66 Helicopter	NC	DAR 310	Aug 9, 2013
ATS-0709-EO-1000	Engineering Order – Installation of all BearPaw BP44 Configurations on R66	NC	DAR310	Aug 9, 2013
ATS-EO-BP-R44-1000	Engineering Order - BearPaw Streamline BP44	NC	DAR 310	Apr 15, 2010
HTC-TM-BP-R44-1000	Structural Substantiation - BearPaw Streamline BP44	NC	DAR 310	Oct 22, 2009
AAC-FTR-C-FBLO	Simple External Modification – Applicant's Flight Test Plan/Report	NC	DAR 310	Aug 4, 2006
AAC-STR-BP-R44-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP44	NC	DAR 310	July 4, 2006

DRAFT

2.0 MASTER DRAWINGS

Drawings #	Title	Revision Status	Approval by	Date
112-0001-00	BearPaw – Assembly	F	DAR 310	Aug 9, 2013
314-0001-01	BearPaw – Pad	C	DAR 310	Aug 9, 2013
314-0002-15	BearPaw – Iceblade	B	DAR 310	Aug 9, 2013
314-0004-15	BearPaw – Iceblade Threaded Rod	B	DAR 310	Aug 9, 2013
314-0005-15	BearPaw – Iceblade Assembly	B	DAR 310	Aug 9, 2013
314-0006-15	BearPaw – U-Shaped Clip	C	DAR 310	Aug 9, 2013
314-0012-01	Filler Block 1/4"	B	DAR 310	Aug 9, 2013
314-0014-01	Filler Block 1/16"	B	DAR 310	Aug 9, 2013
314-0015-01	Filler Block 1/8"	B	DAR 310	Aug 9, 2013
314-0022-01	Filler Block Rear	B	DAR 310	Aug 9, 2013
314-0023-15	BearPaw – Low U-Shaped Clip	B	DAR 310	Aug 9, 2013

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877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

3.0 REFERENCE DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
314-0008-01	Material Properties - UHMW TIVAR	A	N/A	May 24, 2006
314-0009-01	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0017-05	Heat Shrink Specifications	A	N/A	Sept 6, 2006

DRAFT

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HELI TOW CART BY VANAIR

Master Document List

Helitowcart Inc.

Robinson R44 Helicopters
Installation of BearPaw Model BP44

Report: HTC-MDL-BP-R44-1000 (Rev C)

PREPARED BY: Simon Bernier
Staff Specialist - Structures

DATE: APR 15, 2010

APPROVED BY: Mirko Zgela
Design Approval Representative DAR #310

DATE: APR 15, 2010

Revision	Revision Date	Revision of Entry	Entered by
C	2010 04 15	Addition of a rear U shaped clip in the streamline BearPaw Pad configuration	S. Bernier
B	2009 10 22	Introduction of new streamline BearPaw Pad configuration as alternate	S. Bernier
A	2006 09 07	Drawings are added to include the provision of shims during the installation.	N. Barbeau

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HELI TOW CART BY VANAIR

1.0 MASTER DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-R44-1000	Compliance Plan - Robinson R44 66 Helicopters -Installation of Bear Paw Model BP44	~~NC~~ 1	DAR 310	July 4, 2006
314-0011-00	BearPaw Model BP44 – Installation Instructions - R44 66	~~D~~ E	DAR 310	Apr 15, 2010
AAC-STR-BP-R44-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP44 66	~~NC~~ 1	DAR 310	July 4, 2006
AAC-FTR-C-FBLO	Simple External Modification – Applicant's Flight Test Plan/Report	~~NC~~ 1	DAR 310	Aug 4, 2006
HTC-TM-BP-R44-1000	Structural Substantiation - BearPaw Streamline BP44 66	~~NC~~ 1	DAR 310	Oct 22, 2009
ATS-EO-BP-R44-1000	Engineering Order - BearPaw Streamline BP44 66	~~NC~~ 1	DAR 310	Apr 15, 2010

2.0 MASTER DRAWINGS

Drawings # / P/N	Title	Revision Status	Approval by	Date
~~112-0001-01-C~~ Former Pocket Model	~~BearPaw Assembly~~	~~C~~ D	~~DAR 310~~	~~Sept 6, 2006~~
112-0001-01-~~E~~	BearPaw Streamline Assembly	~~E~~ F	DAR 310	Apr 15, 2010
314-0002-15-~~A~~	BearPaw – Iceblade	~~A~~ B	DAR 310	Apr 24, 2006
314-0004-15-~~A~~	BearPaw – Iceblade Threaded Rod	~~A~~ B	DAR 310	Apr 24, 2006
314-0005-15-~~A~~	BearPaw – Iceblade Assembly	~~A~~ B	DAR 310	Apr 24, 2006
~~314-0001-01-A~~	~~BearPaw - Pad~~	~~A~~	~~DAR 310~~	~~Apr 24, 2006~~
314-0001-01-~~A~~	BearPaw – Pad Streamline	~~B~~ C	DAR 310	Oct 22, 2009
314-0006-15-~~B~~	BearPaw – U Shaped Clip	~~B~~ C	DAR 310	July 31, 2006
314-0023-15-~~A~~	BearPaw – Low U Shaped Clip	~~A~~ B	DAR 310	Apr 15, 2010
314-0007-15-~~B~~	Bearpaw – Slotted Clip Support	~~B~~ C	DAR 310	July 31, 2006
314-0012-01-~~A~~	Filler Block ¼"	~~A~~ B	DAR 310	Aug 8, 2006
314-0014-01-~~A~~	Filler Block ~~3/32"~~ 1/16"	~~A~~ B	DAR 310	Sept 6, 2006
314-0015-01-~~A~~	Filler Block 1/8"	~~A~~ B	DAR 310	Sept 6, 2006
314-0022-01-~~A~~	Filler Block Rear	~~A~~ B	DAR 310	Oct 22, 2009

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860 Marie-Victorin, Saint-Nicolas, Levis, Quebec, Canada, G7A 3S9

HELI TOW CART BY VANAIR

3.0 REFERENCE DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
314-0009-01 A	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0008-01 A	Propriétés du UHMW TIVAR	A	N/A	May 24, 2006
314-0017-05 A	Heat Shrink Specifications	A	N/A	Sept 6, 2006

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HELI TOW CART BY VANAIR

Master Document List

Helitowcart

DRAFT

Robinson R44/R66 Helicopters
Installation of BearPaw Model BP44

Report: HTC-MDL-BP-R44-1000 (Rev D)

APPROVED BY: _____ DATE: _____?????_____

Mirko Zgela
Design Approval Representative DAR #310

Tel 1-418-561-4512, Fax: 1-418-836-4575, info@helitowcart.com www.helitowcart.com
877A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada, G7A 5K6

HELI TOW CART BY VANAIR

Revision	Revision Date	Revision of Entry	Entered by
D	2013-08-09	Addition of Robinson R66 helicopter to the fleet eligibility list for BearPaw BP44. a Pad Refinement ?	R. Berthelot
C	2010 04 15	Addition of a rear U shaped clip in the streamline BearPaw Pad configuration	S. Bernier
B	2009 10 22	Introduction of new streamline BearPaw Pad configuration as alternate	S. Bernier
A	2006 09 07	Drawings are added to include the provision of shims during the installation.	N. Barbeau

?

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HELI TOW CART BY VANAIR

1.0 MASTER DOCUMENTS

Document #	Title	Revision Status	Approval by	Date
AAC-CPL-BP-R44-1000	Compliance Plan - Robinson R44/R66 Helicopters -Installation of Bear Paw Model BP44	A	DAR 310	Aug 9, 2013
314-0011-00	BearPaw Model BP44 – Installation Instructions - R44/R66	E	DAR 310	Aug 9, 2013
ATS-0709-FTP-1000	R66 BearPaw Installation - Flight Test Plan	NC	DAR 310	????
ATS-0709-FTR-1000	R66 BearPaw Installation - Flight Test Report	NC	DAR 310	????
ATS-0709-TM-1000	Structural Substantiation – Addition of R66 Helicopter	NC	DAR 310	Aug 9, 2013
ATS-0709-EO-1000	Engineering Order – Installation of all BearPaw BP44 Configurations on R66	NC	DAR310	Aug 9, 2013
ATS-EO-BP-R44-1000	Engineering Order - BearPaw Streamline BP44	NC	DAR 310	Apr 15, 2010
HTC-TM-BP-R44-1000	Structural Substantiation - BearPaw Streamline BP44	NC	DAR 310	Oct 22, 2009
AAC-FTR-C-FBLO	Simple External Modification – Applicant's Flight Test Plan/Report	NC	DAR 310	Aug 4, 2006
AAC-STR-BP-R44-1000	Structural Substantiation – Helitowcart Inc. BearPaw Model BP44	NC	DAR 310	July 4, 2006

2.0 MASTER DRAWINGS

Drawings #	Title	Revision Status	Approval by	Date
112-0001-00	BearPaw BP44 – Assembly	F	DAR 310	Aug 9, 2013
314-0001-01	BearPaw – Pad	C	DAR 310	Aug 9, 2013
314-0002-15	BearPaw – Iceblade	B	DAR 310	Aug 9, 2013
314-0004-15	BearPaw – Iceblade Threaded Rod	B	DAR 310	Aug 9, 2013
314-0005-15	BearPaw – Iceblade Assembly	B	DAR 310	Aug 9, 2013
314-0006-15	BearPaw – U-Shaped Clip	C	DAR 310	Aug 9, 2013
314-0012-01	Filler Block 1/4"	B	DAR 310	Aug 9, 2013
314-0014-01	Filler Block 1/16"	B	DAR 310	Aug 9, 2013
314-0015-01	Filler Block 1/8"	B	DAR 310	Aug 9, 2013
314-0022-01	Filler Block Rear	B	DAR 310	Aug 9, 2013
314-0023-15	BearPaw – Low U-Shaped Clip	B	DAR 310	Aug 9, 2013

ALL UPDATED

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Document #	Title	Revision Status	Approval by	Date
314-0008-01-A	Material Properties - UHMW TIVAR	A	N/A	May 24, 2006
314-0009-01-A	Ultra High Molecular Weight Polyethylene – Typical Properties	A	N/A	May 24, 2006
314-0017-05-A	Heat Shrink Specifications	A	N/A	Sept 6, 2006

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Aviatech TECHNICAL SERVICES Inc.
2595 rue Saint-Olivier
Trois-Rivières, Québec
G9A 4G1

Engineering Order

Title: Installation of all BearPaw BP44 Configurations on R66 helicopters	
EO Number: ATS-0709-EO-1000 Rev NC	**Date issued:** August 09, 2013
Customer: Helitowcart	**Project number:** A2007-09

A/C INFORMATION

A/C Effectivity: R44, R44 II & R66	**Registration / Serial#:** N/A

SIGNATURE

Prepared by:	Mechanical:	Electrical:	Verified:	Approved:
R. Berthelot (OIQ #5033095)	R. Berthelot (OIQ #5033095)	N/A	J.-F. Lemire (OIQ #141774)	Mirko Zgela (DAR #310)

REFERENCE DOCUMENTS

[1] AAC-STR-BP-R44-1000, "Structural Substantiation – Helitowcart Inc. BearPaw Model BP44", Rev NC dated July 4, 2006.
[2] HTC-TM-BP-R44-1000, "Structural Substantiation – BearPaw Streamline BP44", Rev NC dated October 22, 2009.
[3] ATS-0709-TM-1000, "Structural Substantiation – Addition of R66 Helicopter", Rev NC dated August 09, 2013.

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1. Background

Helitowcart has improved its BearPaw design over the years by passing from a pocket configuration with two clips to a longer streamline configuration with two clips and then with three clips. These design changes are shown on Figure 1.

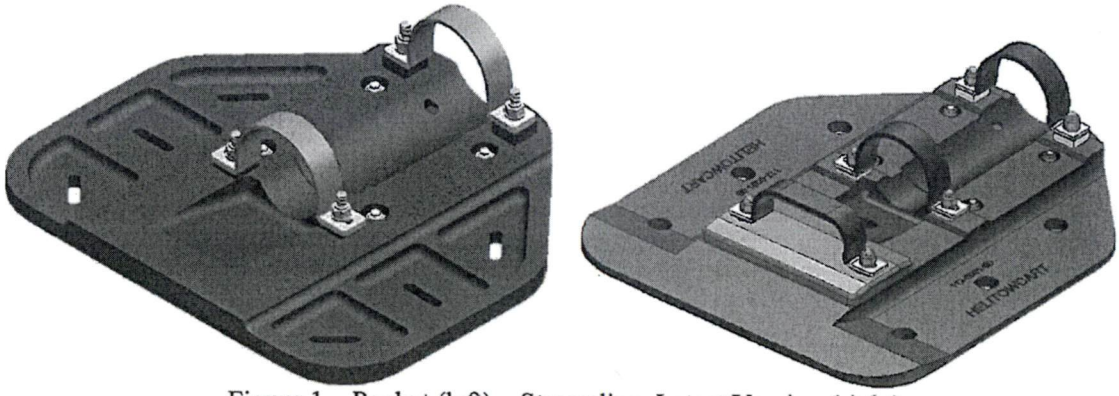


Figure 1 – Pocket (left) – Streamline, Latest Version (right)

T.C. Soumis à TC

2. Structural Compliance

Structural compliance of BearPaw BP44 installation on the R44 and R44 II helicopters was demonstrated in reference [1] for the pocket configuration and in reference [2] for the streamline configuration with two clips.

Structural compliance of BearPaw BP44 installation on the R66 helicopter was demonstrated in reference [3] for the streamline configuration with two clips (the third clip was neglected). This two clip configuration is the most critical since the streamline configuration with three clips and the pocket configurations are stronger.

Therefore, all BearPaw configurations comply with FAR 27 structural requirements and can therefore be installed on the R66 helicopter.

3. Installation on the R66 Helicopter

Helicopter skids are identical for the R44, R44 II and R66 helicopters. Therefore, installation of BearPaw BP44 on the R66 helicopter is to be performed with the original installation instructions provided with the BearPaw at the time of acquisition (Table 1).

Table 1 – Installation Instructions for all BearPaw Configurations

Drawing	Part Number	Description	Installation Instructions
VNR083 Rev R05	112-0001-00-C	Pocket – Two Clips	314-0011-00-B Rev B
112-0001-00-D Rev D	112-0001-00-D	Streamline – Two Clips	314-0011-00-A Rev C
112-0001-00-E Rev E	112-0001-00-E	Streamline – Three Clips	314-0011-00 Rev D
112-0001-00 Rev F	112-0001-00	Streamline – Latest Version	314-0011-00 Rev E

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Aviatech
TECHNICAL SERVICES Inc.

2595 rue Saint-Olivier
Trois-Rivières, Québec
G9A 4G1

Engineering Order

Title: Installation of all BearPaw BP44 Configurations on R66 helicopters	
EO Number: ATS-0709-EO-1000 Rev NC	**Date issued:** August 09, 2013
Customer: Helitowcart	**Project number:** A2007-09

A/C INFORMATION

A/C Effectivity: R44, R44 II & R66	**Registration / Serial#:** N/A

SIGNATURE

Prepared by:	**Mechanical:**	**Electrical:**	**Verified:**	**Approved:**
R. Berthelot (OIQ #5033095)	R. Berthelot (OIQ #5033095)	N/A	J.-F. Lemire (OIQ #141774)	Mirko Zgela (DAR #310)

REFERENCE DOCUMENTS

[1] AAC-STR-BP-R44-1000, "Structural Substantiation – Helitowcart Inc. BearPaw Model BP44", Rev NC dated July 4, 2006.

[2] HTC-TM-BP-R44-1000, "Structural Substantiation – BearPaw Streamline BP44", Rev NC dated October 22, 2009.

[3] ATS-0709-TM-1000, "Structural Substantiation – Addition of R66 Helicopter", Rev NC dated August 09, 2013.

1. Background

Helitowcart has improved its BearPaw design over the years by passing from a pocket configuration with two clips to a longer streamline configuration with two clips and then with three clips. These design changes are shown on Figure 1.



Figure 1 – Pocket (left) – Streamline, Latest Version (right)

DRAFT

Aviatech
TECHNICAL SERVICES Inc.

2595 rue Saint-Olivier
Trois-Rivières, Québec
G9A 4G1

2. Structural Compliance

Structural compliance of BearPaw BP44 installation on the R44 and R44 II helicopters was demonstrated in reference [1] for the pocket configuration and in reference [2] for the streamline configuration with two clips.

where is the Ref #1 & #2?

Structural compliance of BearPaw BP44 installation on the R66 helicopter was demonstrated in reference [3] for the streamline configuration with two clips (the third clip was neglected). This configuration is the most critical since the streamline configuration with three clips and the pocket configurations are stronger.

with two clips yes?

which one?

Therefore, all BearPaw configurations comply with FAR 27 structural requirements and can therefore be installed on the R66 helicopter.

3. Installation on the R66 Helicopter

Helicopter skids are identical for the R44, R44 II and R66 helicopters. Therefore, installation of BearPaw BP44 on the R66 helicopter is to be performed with the original installation instructions provided with the BearPaw at the time of acquisition (Table 1).

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Drawing	Part Number	Description	Installation Instructions
VNR083 Rev R05	112-0001-00-C	Pocket – Two Clips	314-0011-00-B Rev B
112-0001-00-D Rev D	112-0001-00-D	Streamline – Two Clips	314-0011-00-A Rev C
112-0001-00-E Rev E	112-0001-00-E	Streamline – Three Clips	314-0011-00 Rev D
112-0001-00 Rev F	112-0001-00	Streamline – Latest Version	314-0011-00 Rev E

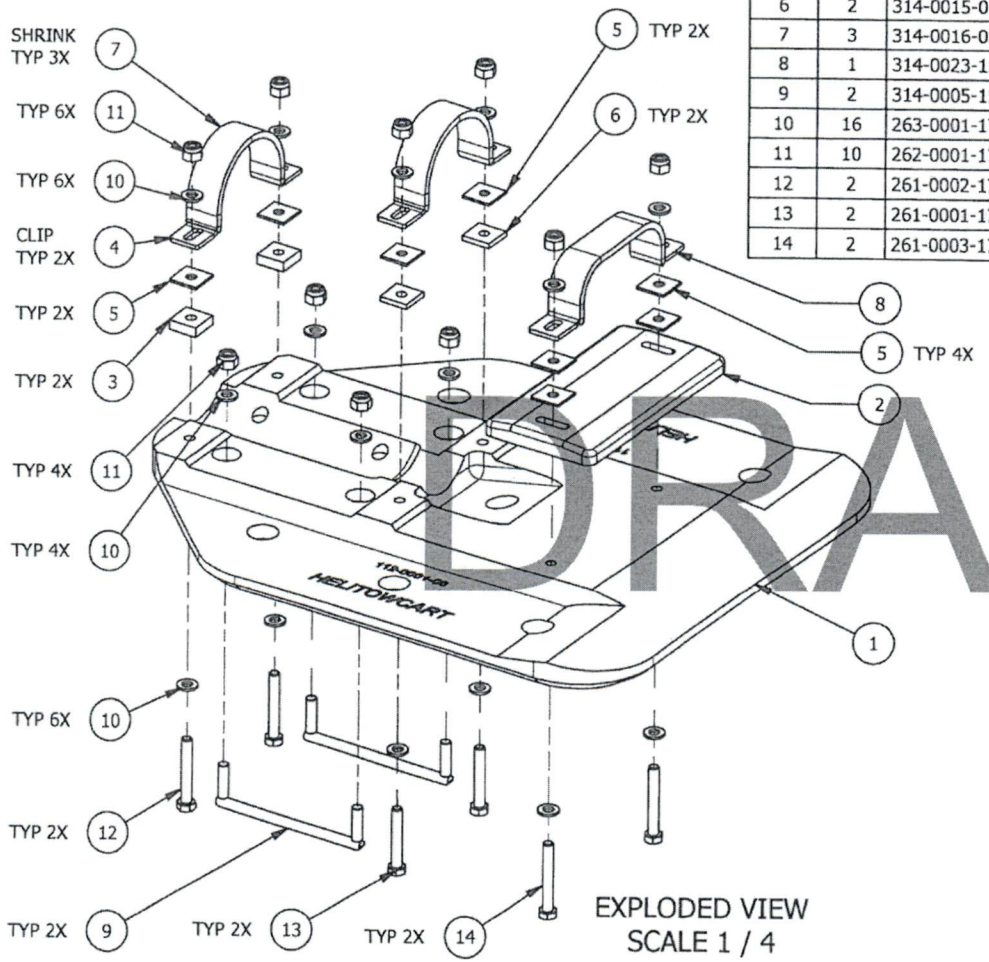
DRAFT

NOTES:

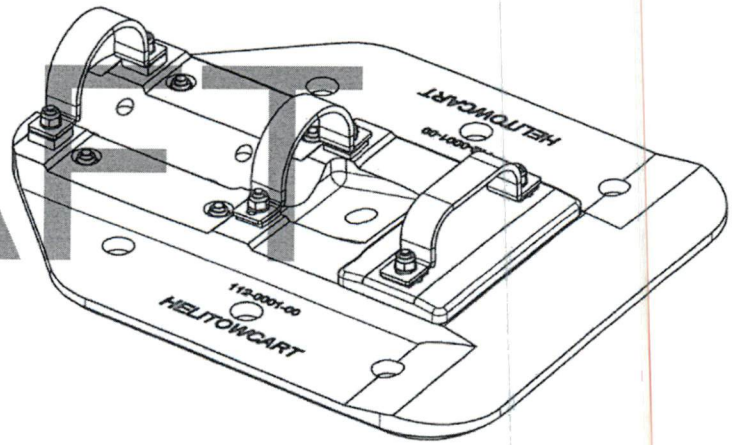
1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	8	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	314-0016-05	BEARPAW - SHRINK (FIT-221)	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	STEEL	---	---
10	16	263-0001-17	WASHER (AN960-416)	STEEL	---	1/4
11	10	262-0001-17	NYLON NUT (AN365-428A)	STEEL	---	1/4
12	2	261-0002-17	HEX BOLT (AN4-15A)	STEEL	QQ-P-416A	1/4-28
13	2	261-0001-17	HEX BOLT (AN4-14A)	STEEL	---	---
14	2	261-0003-17	HEX BOLT (AN4-16A)	STEEL	QQ-P-416A	1/4-28



EXPLODED VIEW
SCALE 1 / 4



ASSEMBLED
SCALE 1 / 4

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE	M. ZGELA	2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006/04/25
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006/04/25
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ASSEMBLY

DRAWING NUMBER: 112-0001-00 — REV: F

SHEET: 1 OF 1

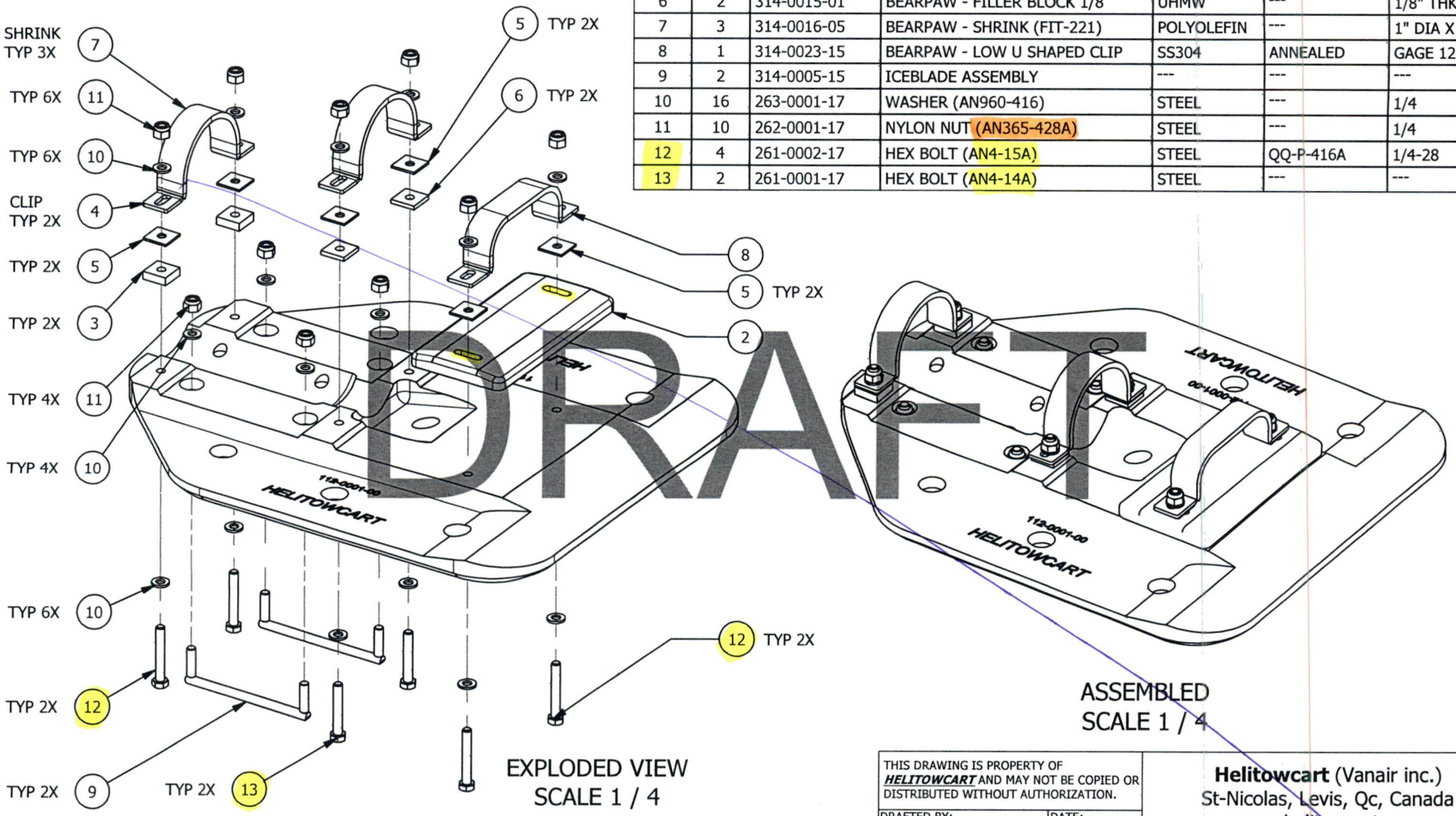
T.C submis à TC

NOTES:

1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	6	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	314-0016-05	BEARPAW - SHRINK (FIT-221)	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	---	---	---
10	16	263-0001-17	WASHER (AN960-416)	STEEL	---	1/4
11	10	262-0001-17	NYLON NUT (AN365-428A)	STEEL	---	1/4
12	4	261-0002-17	HEX BOLT (AN4-15A)	STEEL	QQ-P-416A	1/4-28
13	2	261-0001-17	HEX BOLT (AN4-14A)	STEEL	---	---



EXPLODED VIEW
SCALE 1 / 4

ASSEMBLED
SCALE 1 / 4

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE		2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE		2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

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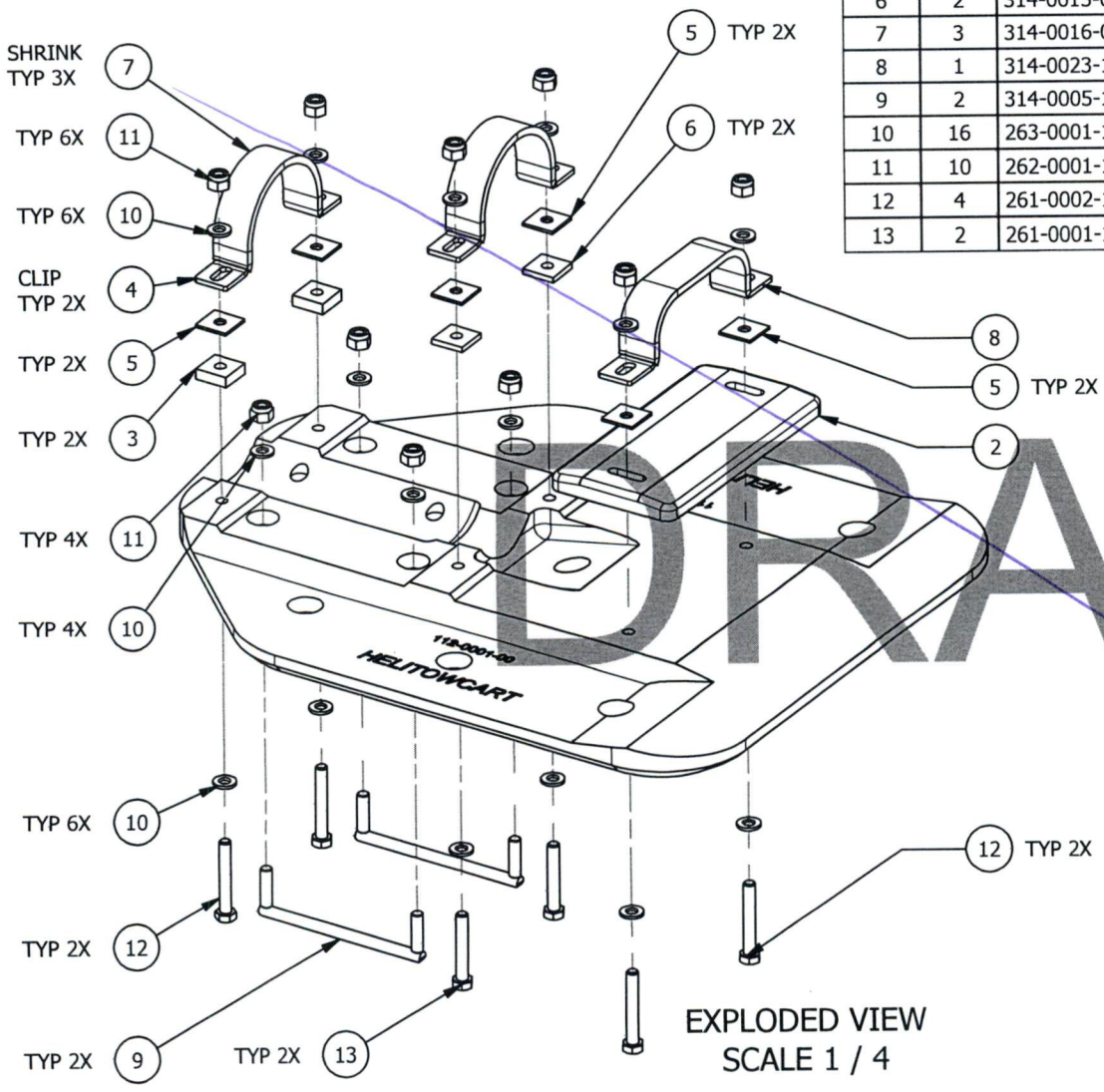
DRAFTED BY: G. LAPOINTE	DATE: 2006-04-25	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW ASSEMBLY
APPROVED TCCA BY:	DATE:	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 112-0001-00 REV F SHEET: 1 OF 1

NOTES:

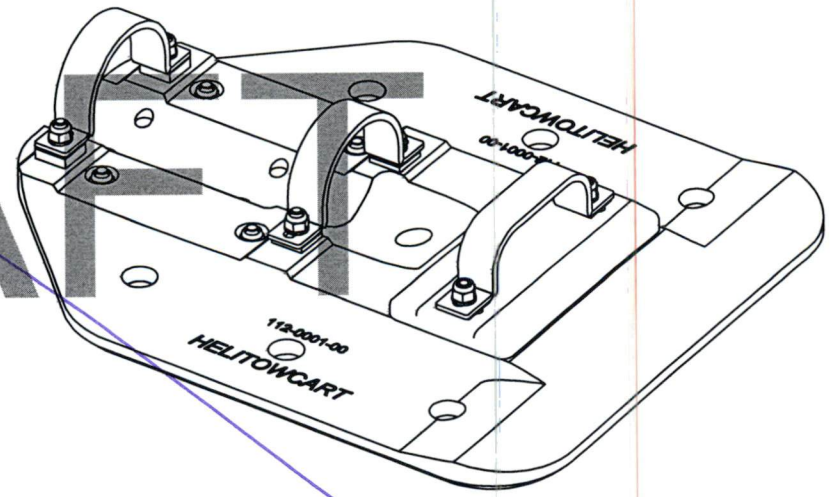
1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	6	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	314-0016-05	BEARPAW - SHRINK (FIT-221)	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	---	---	---
10	16	263-0001-17	WASHER (AN960-416)	STEEL	---	1/4
11	10	262-0001-17	NYLON NUT (AN365-428A)	STEEL	---	1/4
12	4	261-0002-17	HEX BOLT (AN4-15A)	STEEL	QQ-P-416A	1/4-28
13	2	261-0001-17	HEX BOLT (AN4-14A)	STEEL	---	---



EXPLODED VIEW
SCALE 1 / 4



ASSEMBLED
SCALE 1 / 4

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE		2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE		2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-04-25
CHECKED BY: — DATE:
APPROVED TCCA BY: — DATE:

IF NOT SPECIFIED GENERAL TOLERANCE
1/X ± 1/32
X.XX ± 0.010"
X.XXX ± 0.005"
ANG. ± 1°

UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ASSEMBLY

DRAWING NUMBER: 112-0001-00 — REV: F

SHEET: 1 OF 1

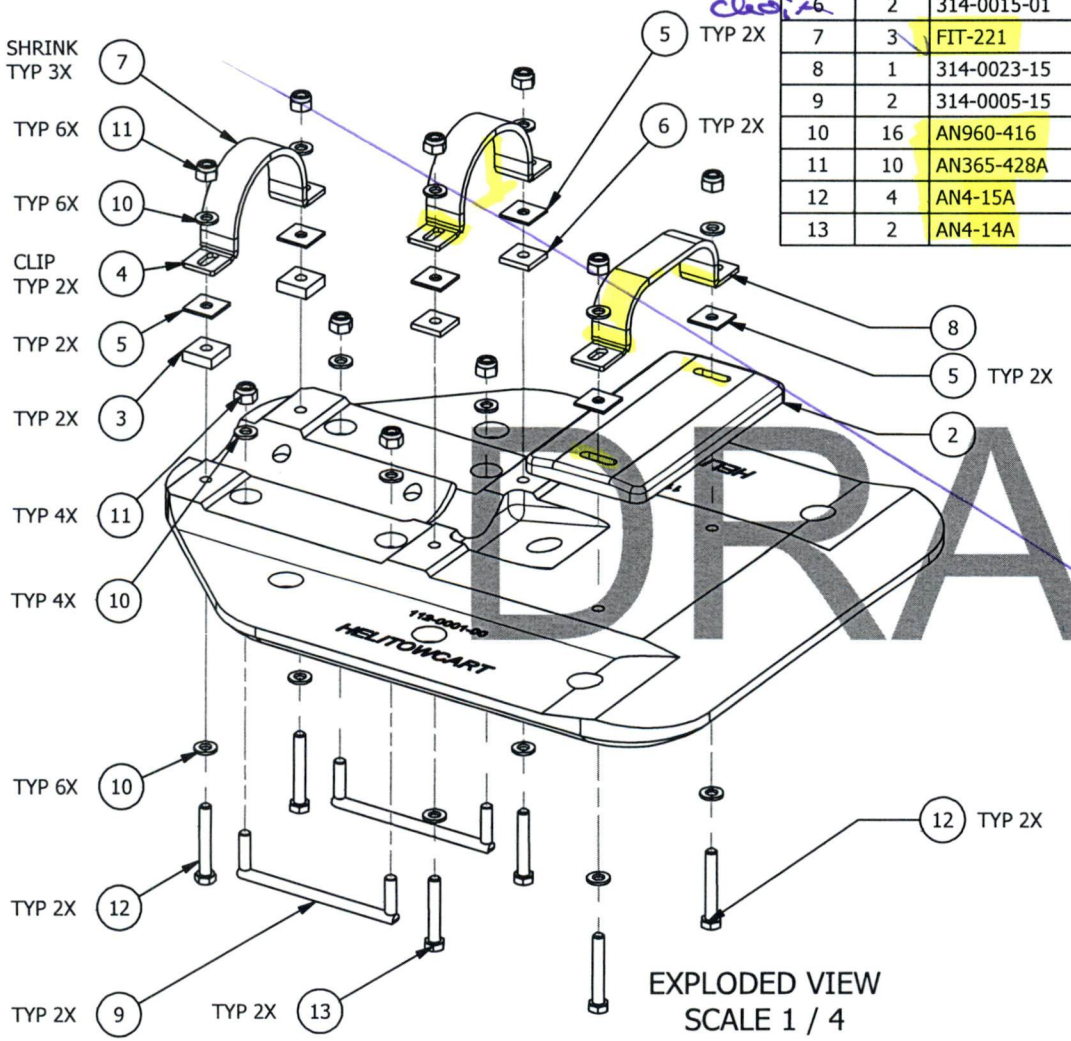
NOTES:

1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

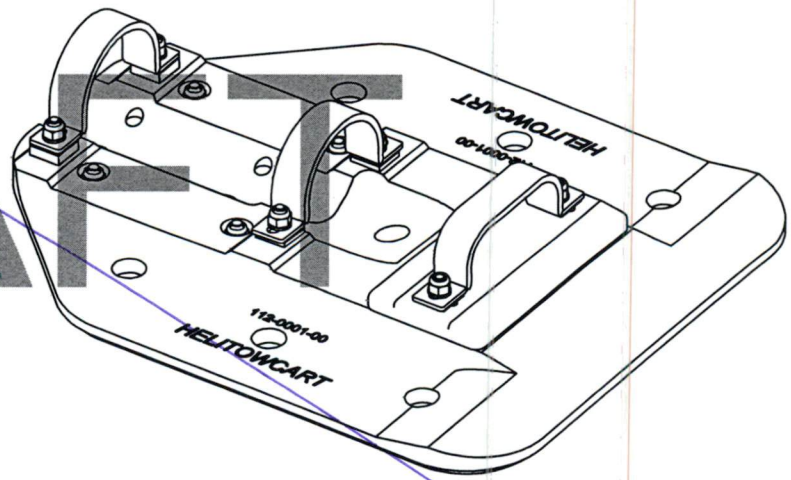
2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

↳ permet de Δ de start — à autre avec choix

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD STREAMLINE	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	6	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	FIT-221	BEARPAW - SHRINK	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	---	---	---
10	16	AN960-416	WASHER	STEEL	---	1/4
11	10	AN365-428A	NYLON NUT	STEEL	---	1/4
12	4	AN4-15A	HEX BOLT - 1/4-28 UNF X 1 21/32 LG.	STEEL	QQ-P-416A	1/4-28
13	2	AN4-14A	HEX BOLT - 1/4-28 UNF X 1 17/32 LG.	STEEL	---	---



EXPLODED VIEW
SCALE 1 / 4



ASSEMBLED
SCALE 1 / 4

DRAFT

REVISION

REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE		2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE		2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-04-25
CHECKED BY: — DATE:
APPROVED TCCA BY: — DATE:

IF NOT SPECIFIED GENERAL TOLERANCE
1/X ± 1/32
X.XX ± 0.010"
X.XXX ± 0.005"
ANG. ± 1°

UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

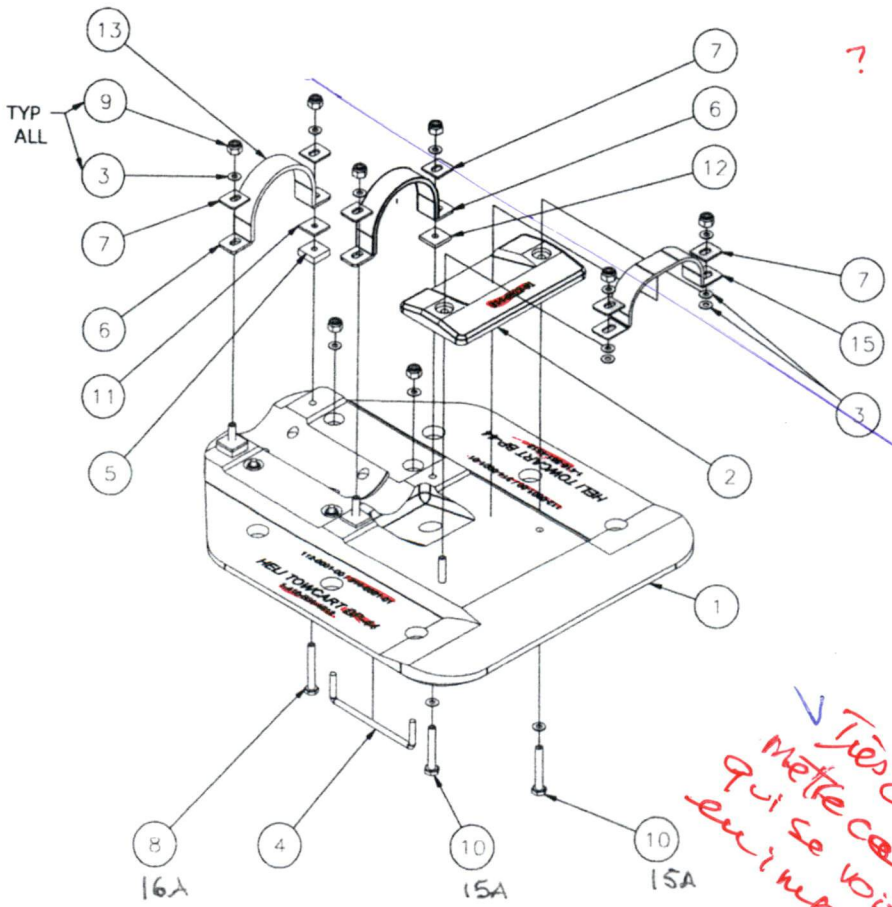
DEFINITION:
BEARPAW
STREAMLINE ASSEMBLY

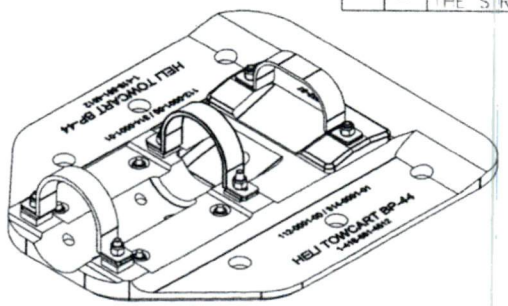
DRAWING NUMBER: 112-0001-00
REV: F
SHEET: 1 OF 1

112-0001-00-E 1 OF 1

NOTE:
1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)
2. FASTENERS LENGHT TO BE DETERMINED AT THE INSTALLATION

REVISIONS				
☐ REWORKABLE ☐ NONREWORKABLE 3 NOTES 4 NA				
ZONE	REV	DESCRIPTION	DR. & DATE	STRESS
	A	ISSUE FOR PRODUCTION		
	B	MODIFY BOLT MODEL AND ADD FILER BLOCK		
	C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK		
	D	ADDITION OF STREAMLINE PAD CONFIGURATION		
	E	ADDITION OF A REAR U SHAPED CLIP IN THE STREAMLINE PAD CONFIGURATION		





ISO
SCALE 1 / 4

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SIZE
15	1	314 0023 15 A	BEARPAW U SHAPED CLIP REAR	STEEL	
13	3	314 0016 05 A	BEARPAW SHRINK 1X5	RUBBER	
12	2	314 0015 01 A	BEARPAW FILLER BLOCK 1/8	UHMW	1/8
11	2	314 0014 01 A	BEARPAW FILLER BLOCK 3/32	UHMW	3/32
10	4	261 0003 [illegible] A	BOLT AN4 15A	STEEL	1/4
9	10	262 0001 [illegible] A	NUT MS20365 4PH	STEEL	1/4
8	2	261 0003 [illegible] A	BOLT AN4 16A	STEEL	1/4
7	6	314 0007 15 A	BEARPAW SLOTTED CLIP S PORT	STEEL	
6	2	314 0005 15 A	BEARPAW U SHAPED CLIP	STEEL	
5	2	314 0012 01 A	BEARPAW FILLER BLOCK 1/4	UHMW	1/4
4	2	314 0005 15 A	BEARPAW ICE BLADE ASSEMBLY	STEEL	
3	20	262 0001 [illegible] A	WASHER AN960 416	STEEL	1/4
2	1	314 0027 01 A	BEARPAW FILLER BLOCK REAR	UHMA	1/2
1	1	314 0001 01 A	BEARPAW PAD	UHMW	

Glissoir à faire
Mettre caractère
qui se voit bien
en impression

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DRAWN: BERNIER 8/04/20
DESIGNED: NORMAND 8/04/20
CHECKED:
STRESS:
APPROVED:
APPROVED:
APPROVED M. ZOLA 8/04/20

HELI TOW CART

BEARPAW
STREAMLINE ASSEMBLY

SIZE B | DRAWING NO. 112-0001-00-E | REV E

112-0001-00-E

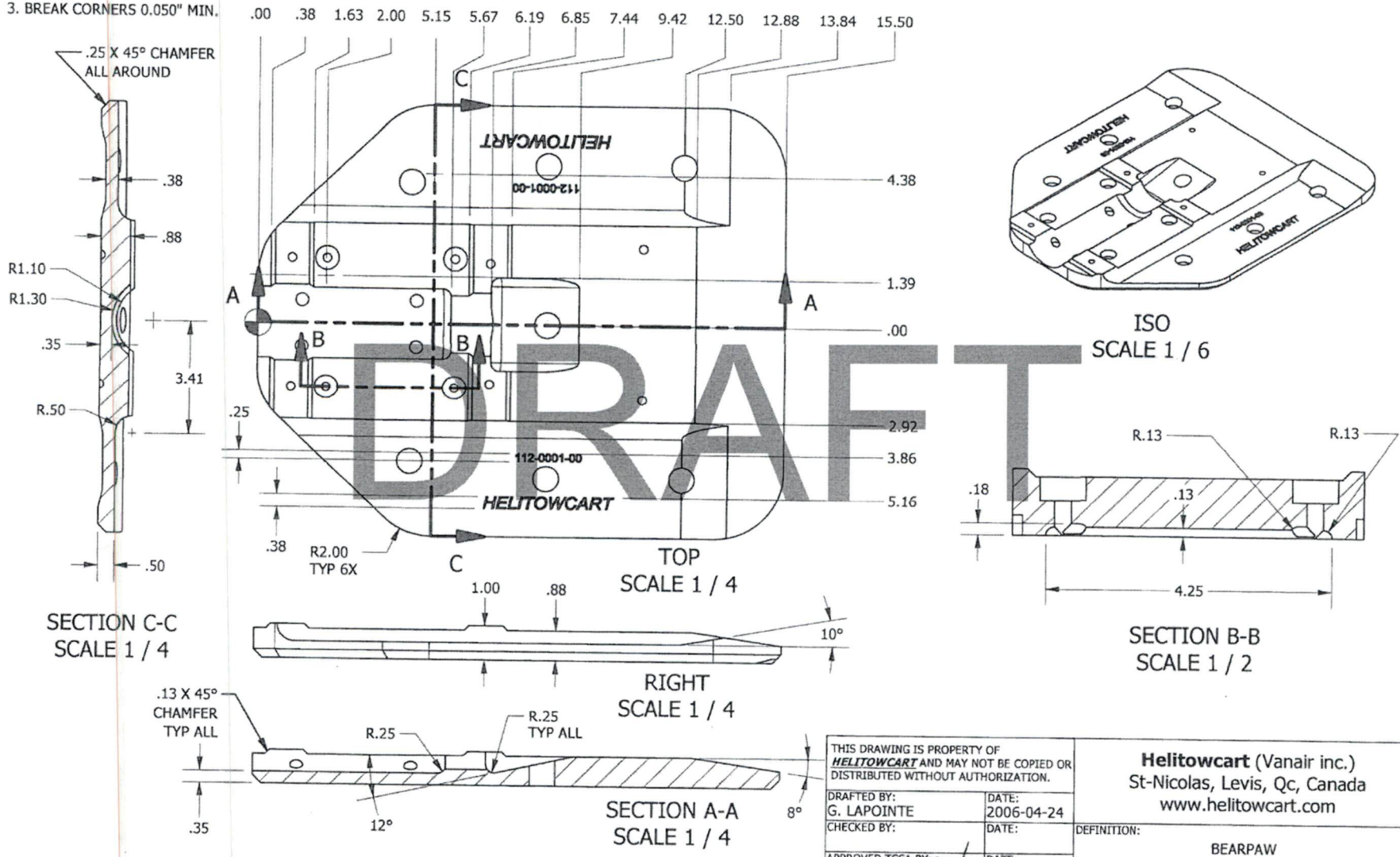
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX.

3. BREAK CORNERS 0.050" MIN.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.



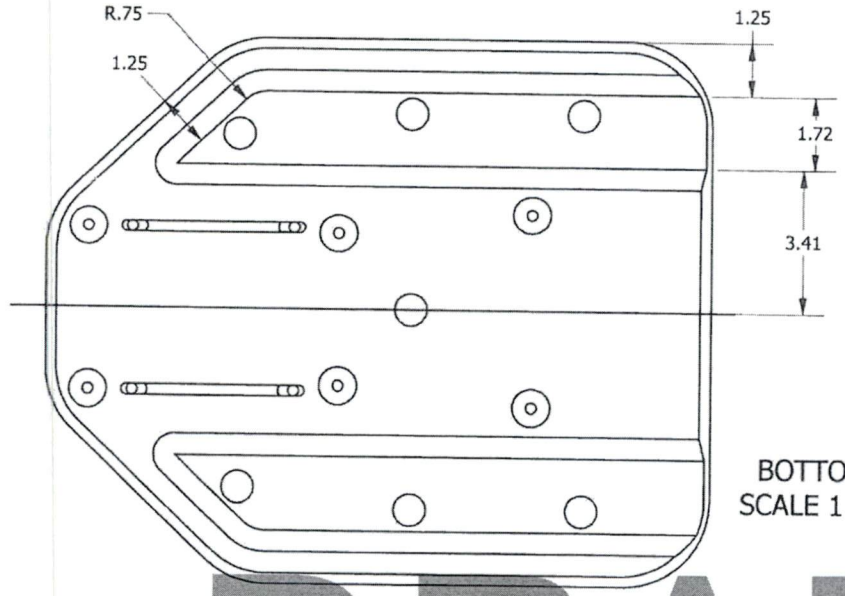
DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	ADDITION OF STREAMLINE PAD CONFIGURATION	S. BERNIER	M. ZGELA	2009-10-22
C	MODIFIED ENGRAVING, CHANGED ZONES FOR DAMAGE TOLERANCE	R.B.R.	M. ZGELA	2013-08-09

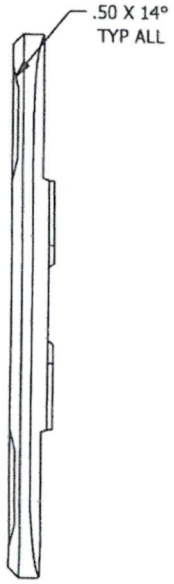
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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0001-01 REV: C
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 1 OF 3

T.G. Soumis à TC

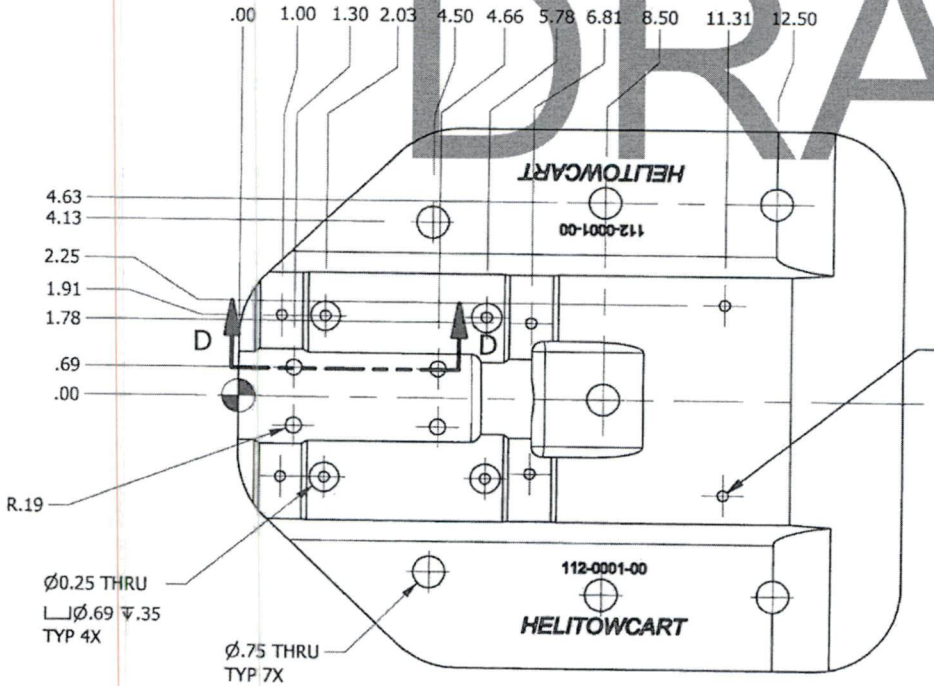


BOTTOM
SCALE 1 / 4

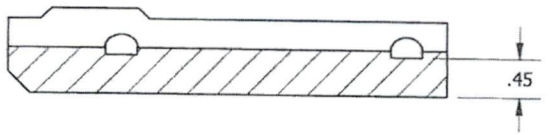


REAR
SCALE 1 / 4

DRAFT

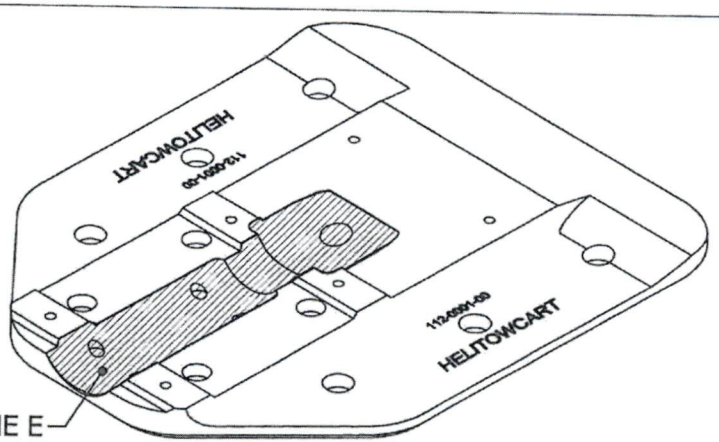


TOP
SCALE 1 / 4



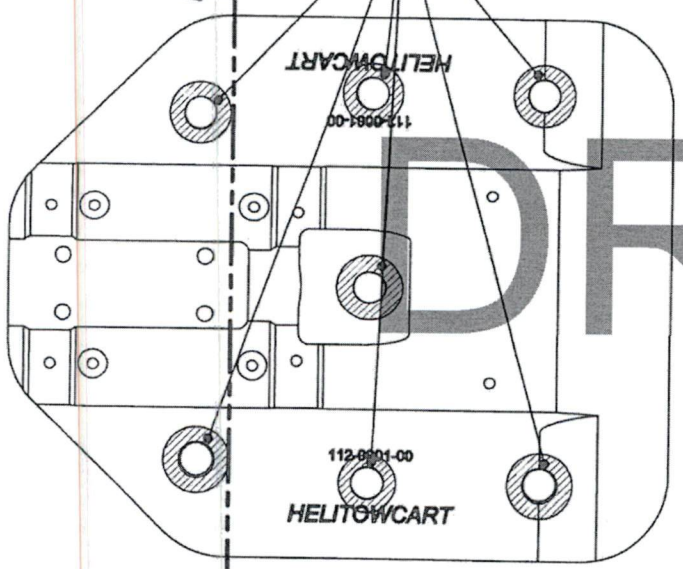
SECTION D-D
SCALE 1 / 2

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0001-01 REV C SHEET: 2 OF 3



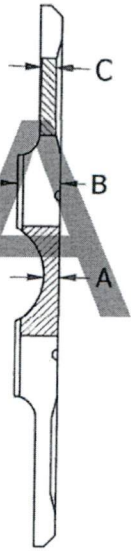
ISO
SCALE 1 / 4

ZONE D
ZONE E
E



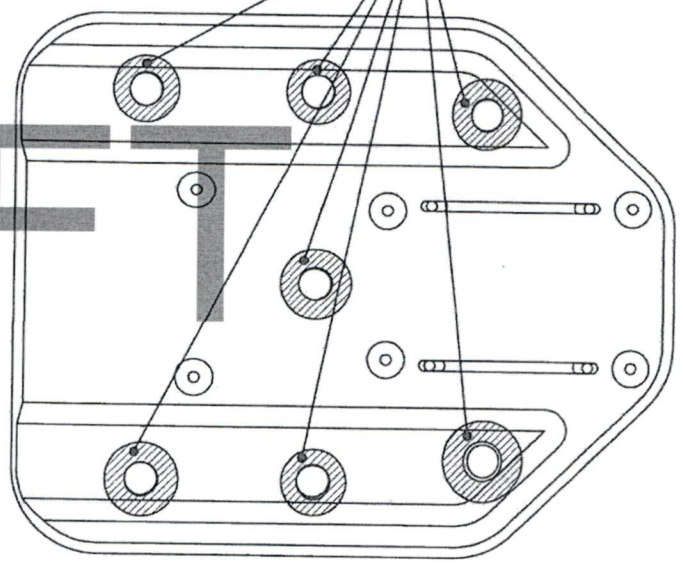
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TOP
SCALE 1 / 4



SECTION E-E
SCALE 1 / 4

ZONE D



DRAFT

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0001-01 REV C SHEET: 3 OF 3

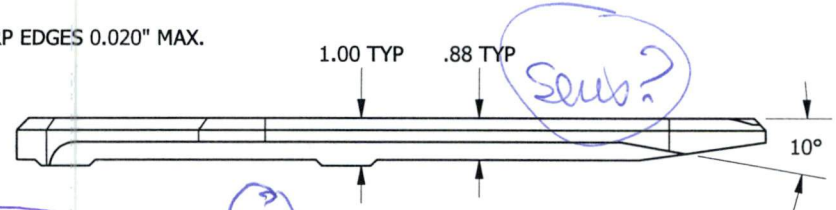
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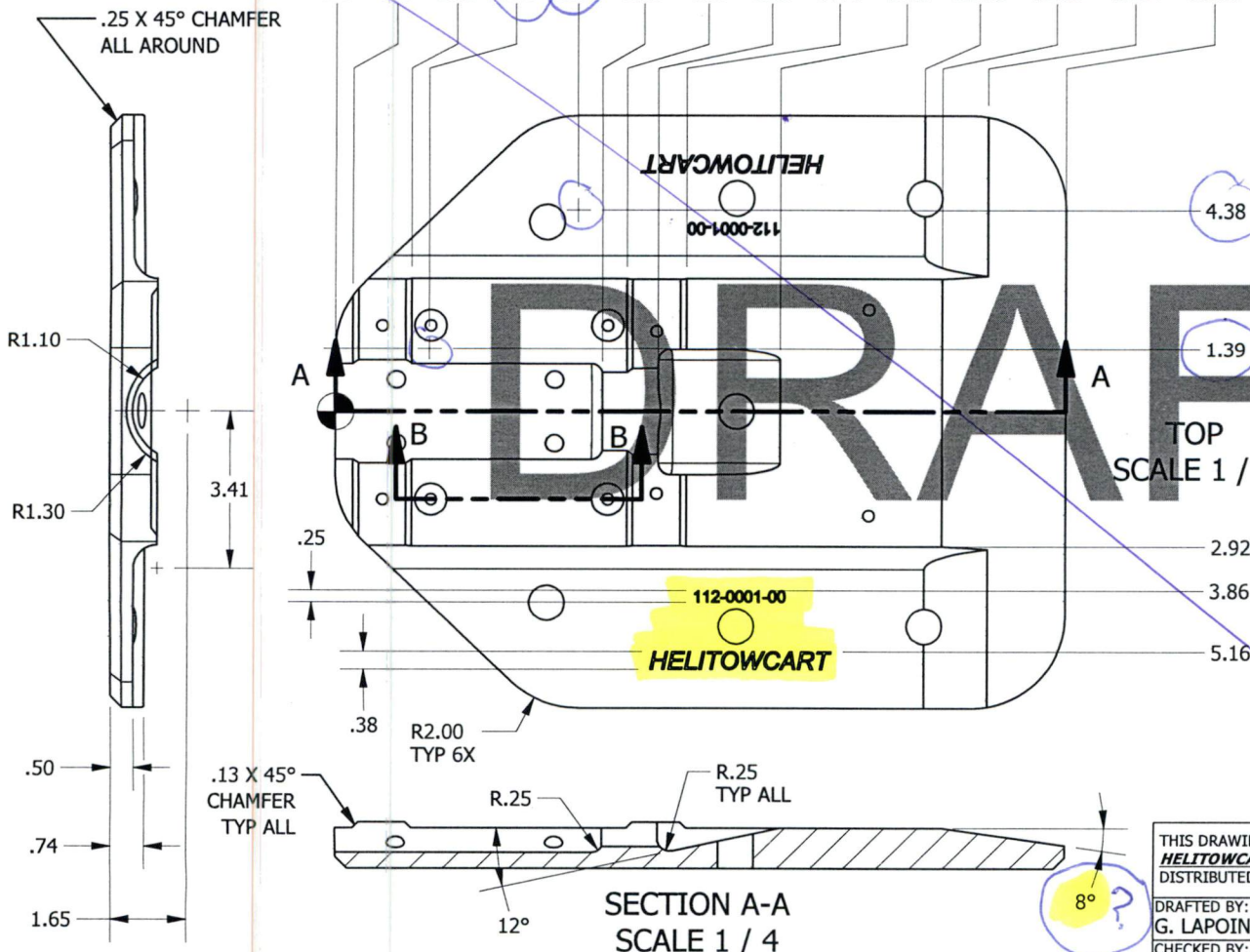
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX.

3. BREAK CORNERS 0.050" MIN.

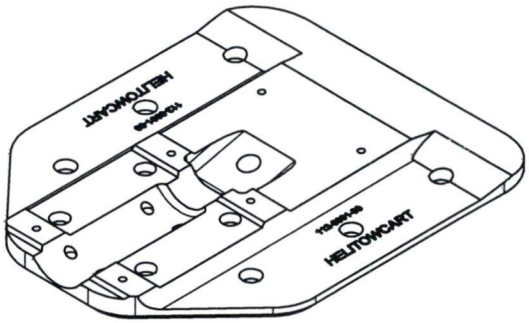
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.



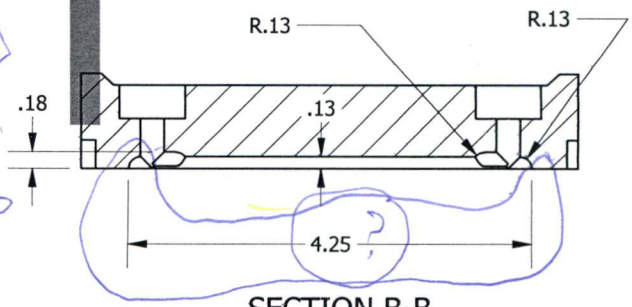


TOP
SCALE 1 / 4

SECTION A-A
SCALE 1 / 4



ISO
SCALE 1 / 6



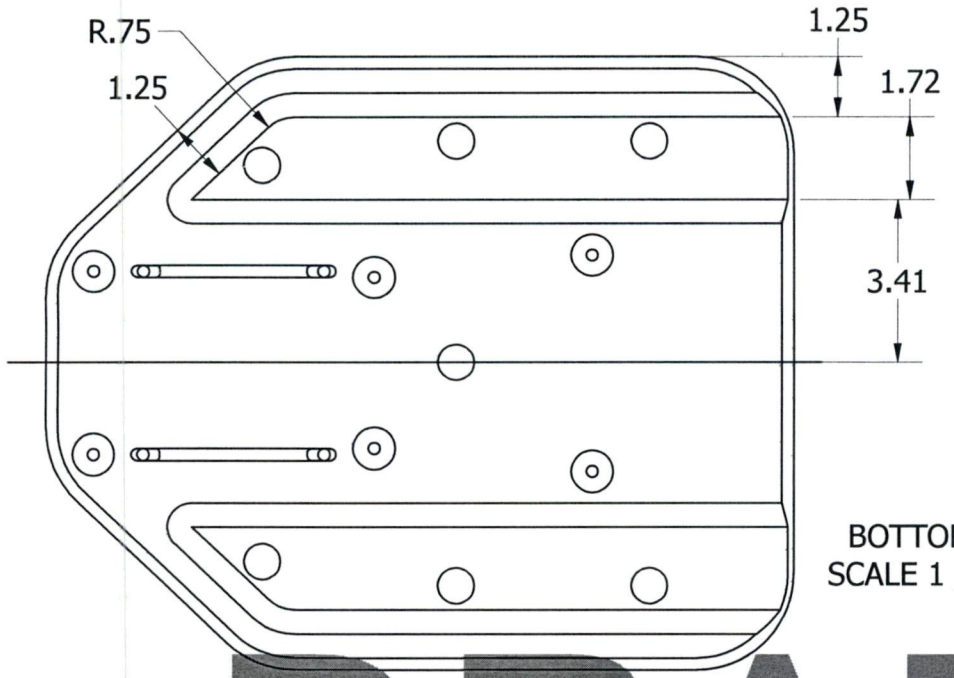
SECTION B-B
SCALE 1 / 2

DRAFT

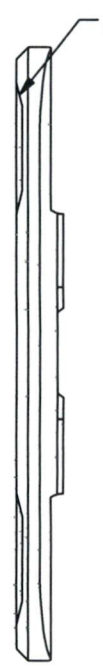
REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	ADDITION OF STREAMLINE PAD CONFIGURATION	S. BERNIER	M. ZGELA	2009-10-22
C	MODIFIED ENGRAVING, CHANGED ZONES FOR DAMAGE TOLERANCE	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0001-01 REV C SHEET: 1 OF 3

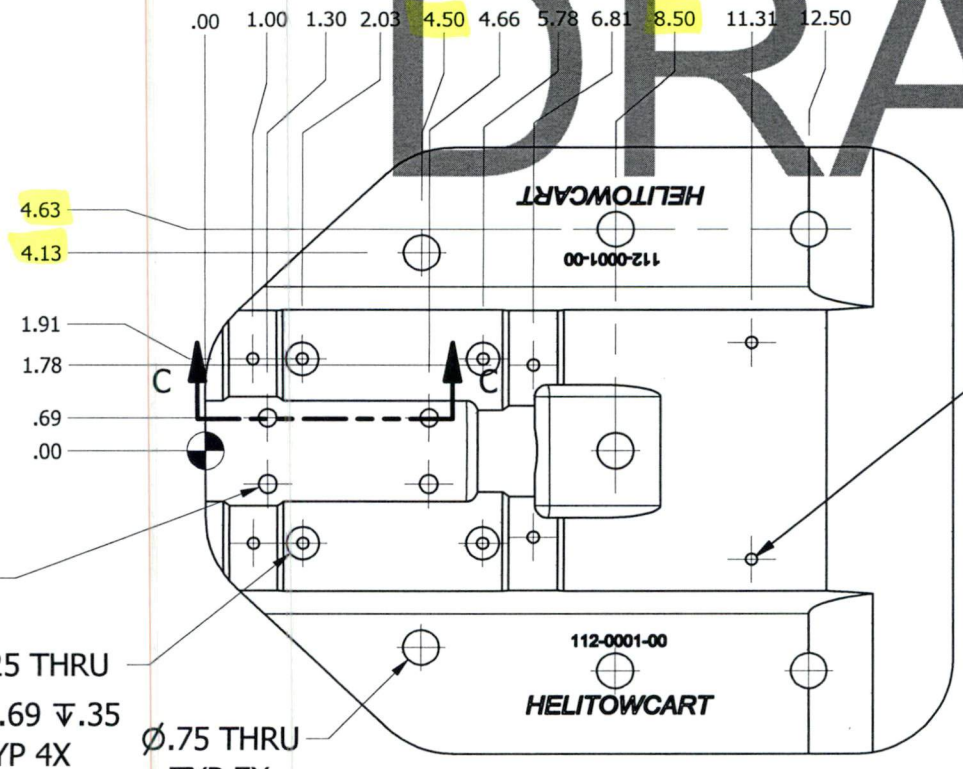


BOTTOM
SCALE 1 / 4

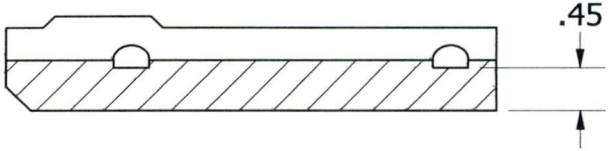


RIGHT
SCALE 1 / 4

DRAFT

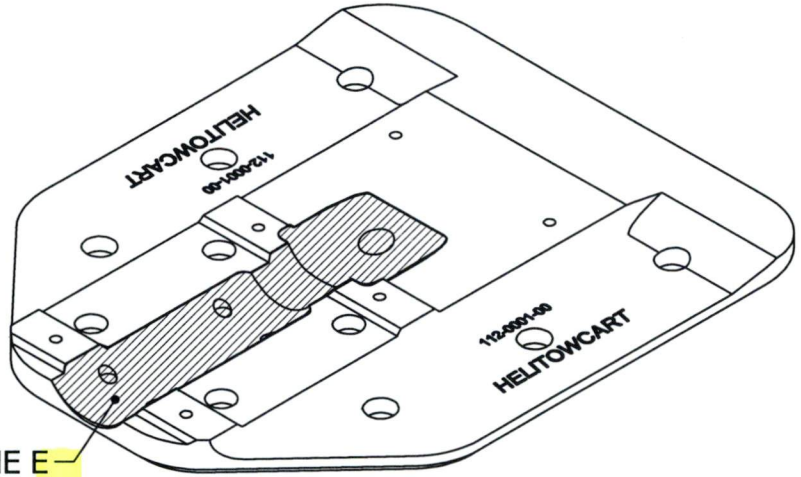


TOP
SCALE 1 / 4



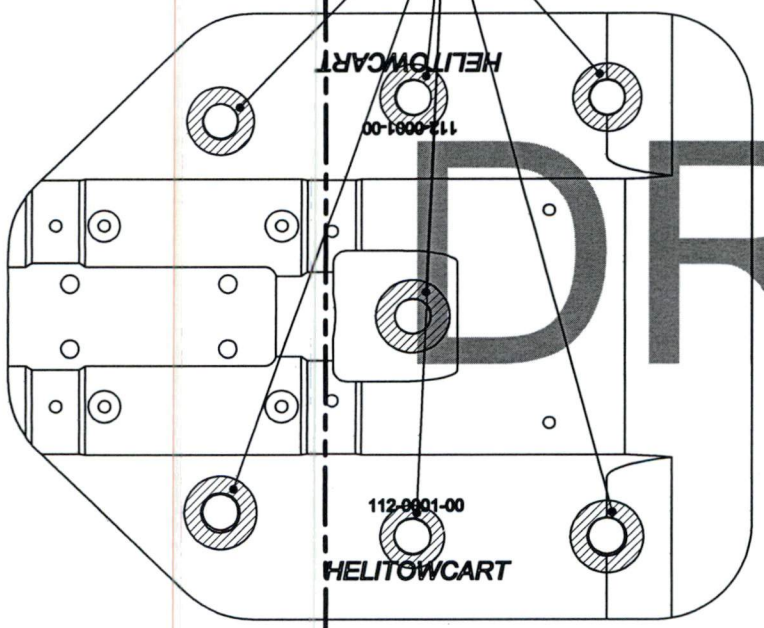
SECTION C-C
SCALE 1 / 2

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0001-01 REV: C
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 2 OF 3



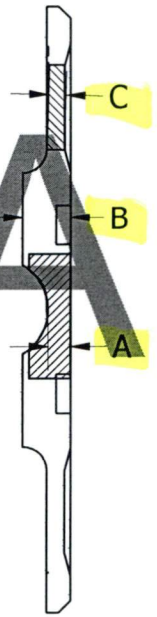
ISO
SCALE 1 / 4

ZONE D
E
ZONE E



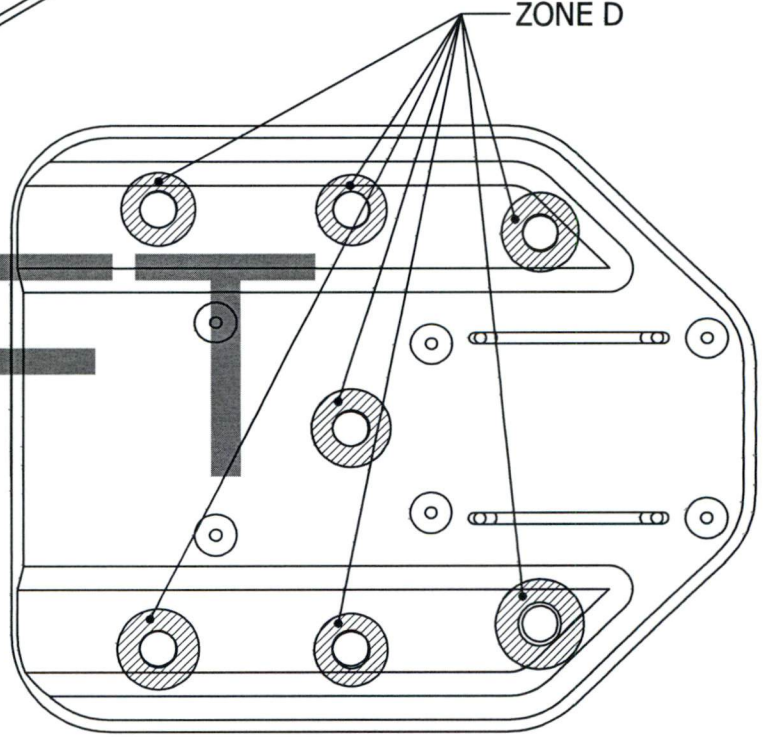
TOP
SCALE 1 / 4

E



SECTION E-E
SCALE 1 / 4

ZONE D



DRAFT

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0001-01 / REV: C
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 3 OF 3

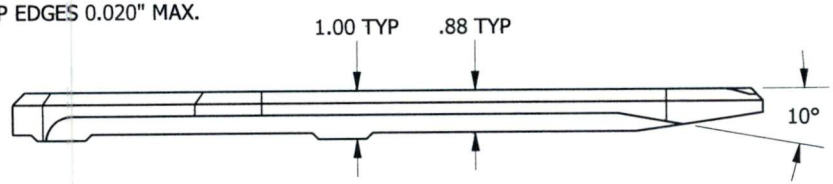
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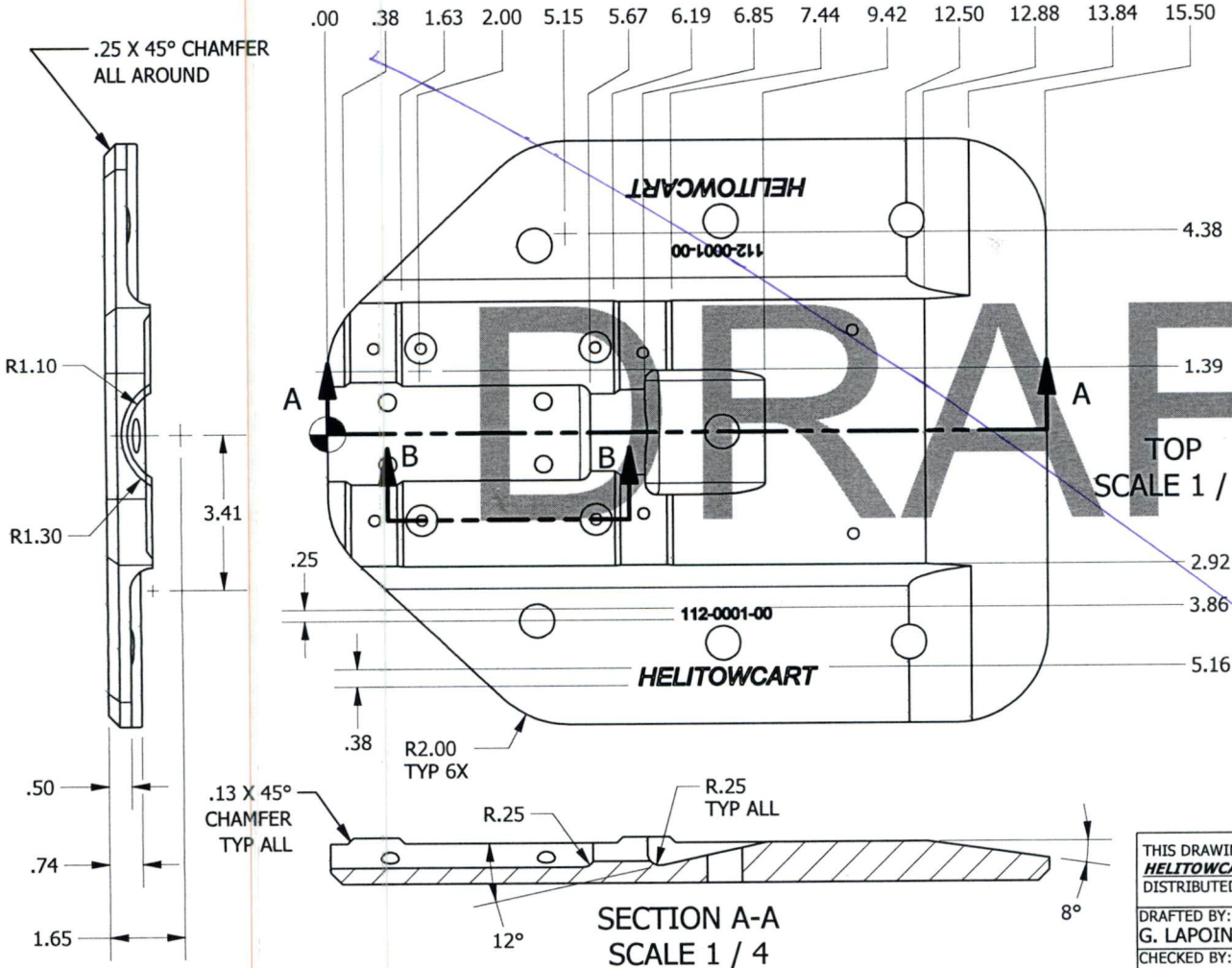
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX.

3. BREAK CORNERS 0.050" MIN.

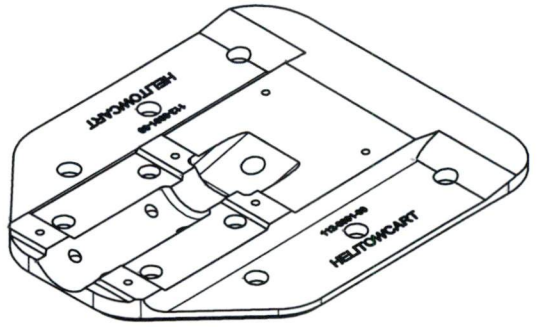
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.



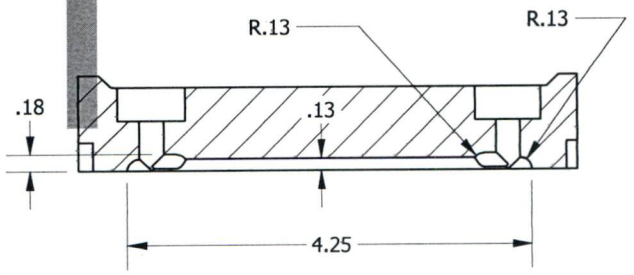


SECTION A-A
SCALE 1 / 4

TOP
SCALE 1 / 4



ISO
SCALE 1 / 6



SECTION B-B
SCALE 1 / 2

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	ADDITION OF STREAMLINE PAD CONFIGURATION	S. BERNIER	M. ZGELA	2009-10-22
C	MODIFIED ENGRAVING, CHANGED ZONES FOR DAMAGE TOLERANCE	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	

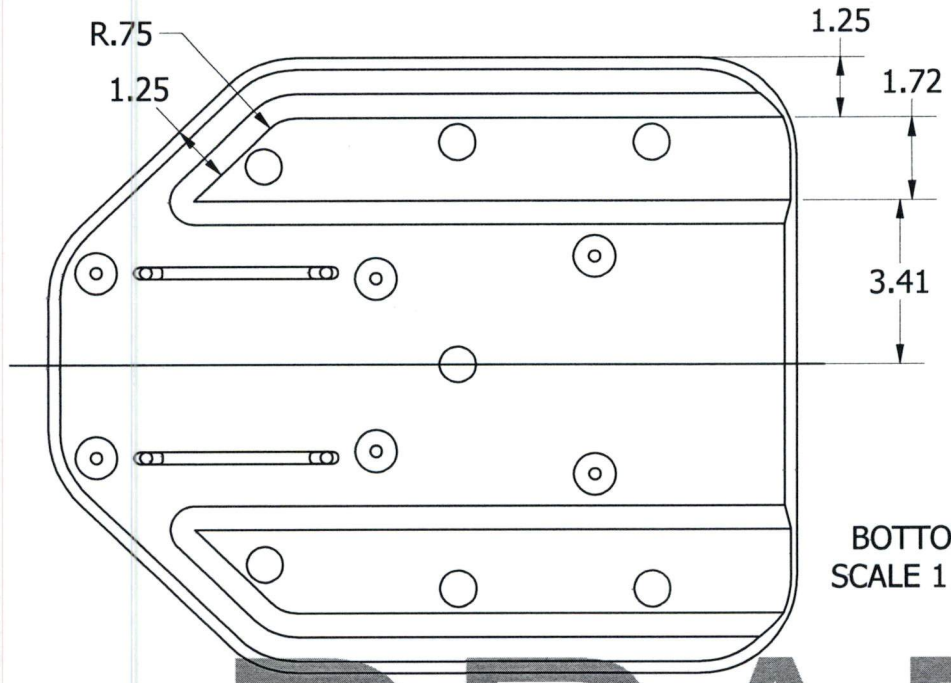
Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW PAD

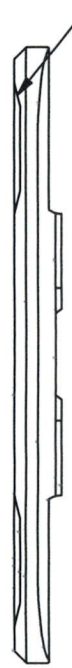
DRAWING NUMBER: 314-0001-01

REV: C

SHEET: 1 OF 3

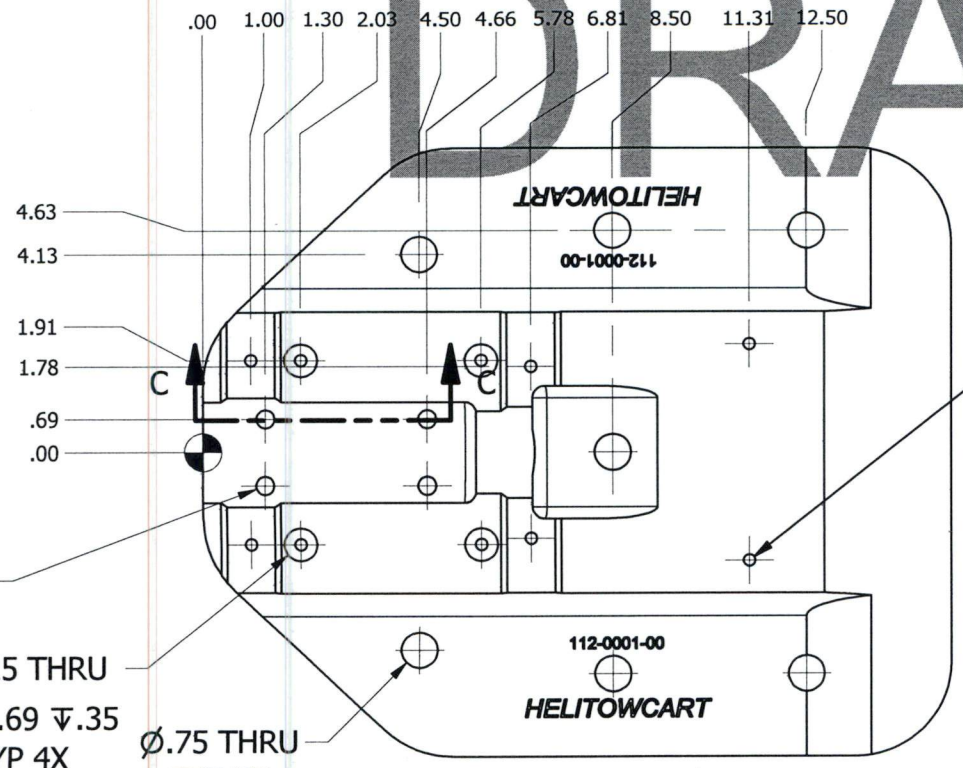


BOTTOM
SCALE 1 / 4

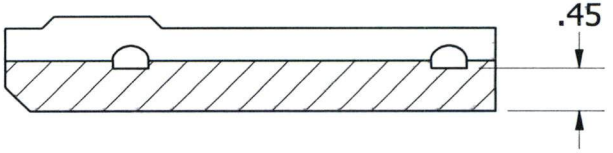


RIGHT
SCALE 1 / 4

DRAFT

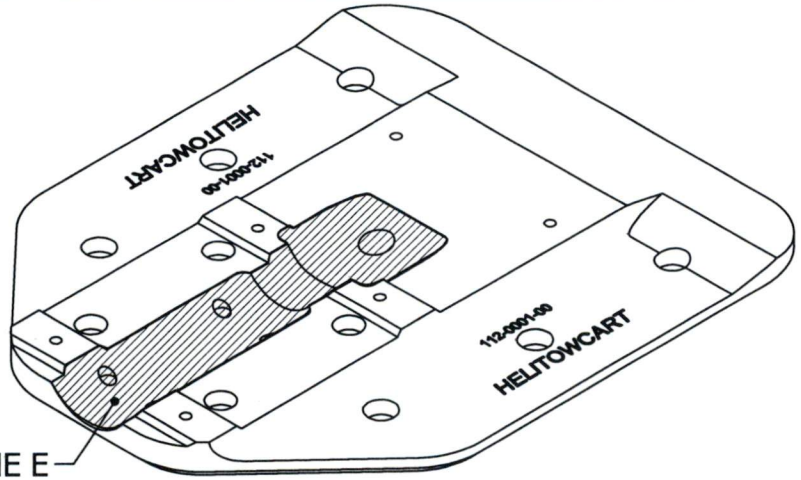


TOP
SCALE 1 / 4



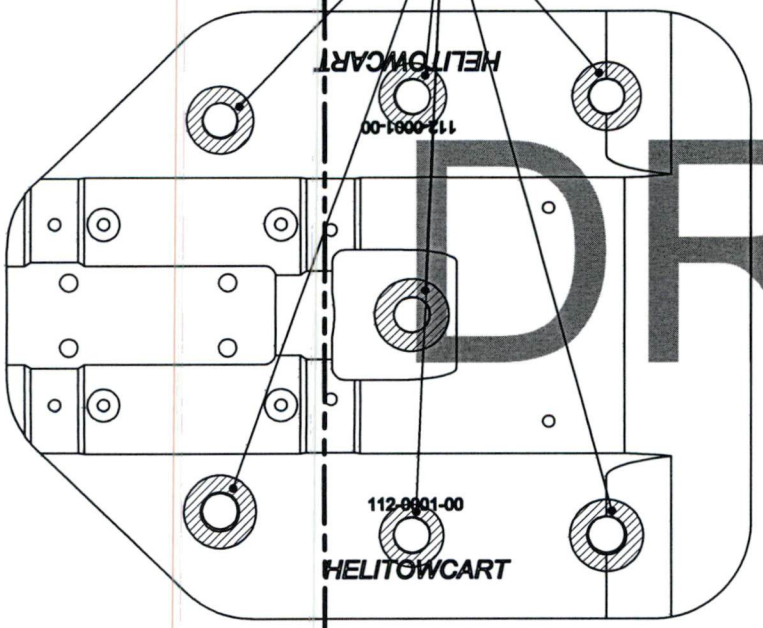
SECTION C-C
SCALE 1 / 2

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0001-01 REV C
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE A	
	SCALE: N/A	SHEET: 2 OF 3



ISO
SCALE 1 / 4

ZONE D
E
ZONE E



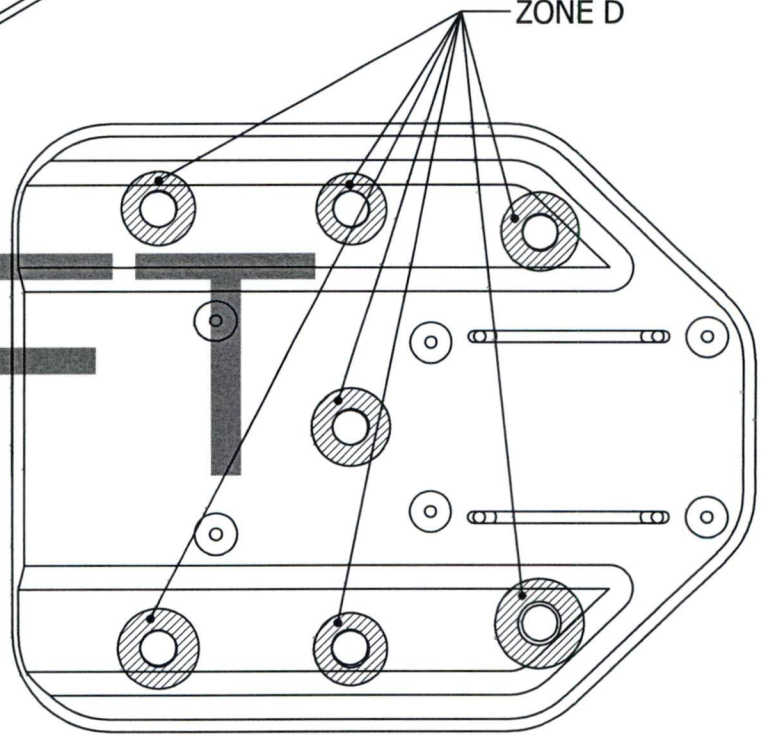
E

TOP
SCALE 1 / 4



SECTION E-E
SCALE 1 / 4

ZONE D



DRAFT

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0001-01 REV C
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE A	
	SCALE: N/A	SHEET: 3 OF 3

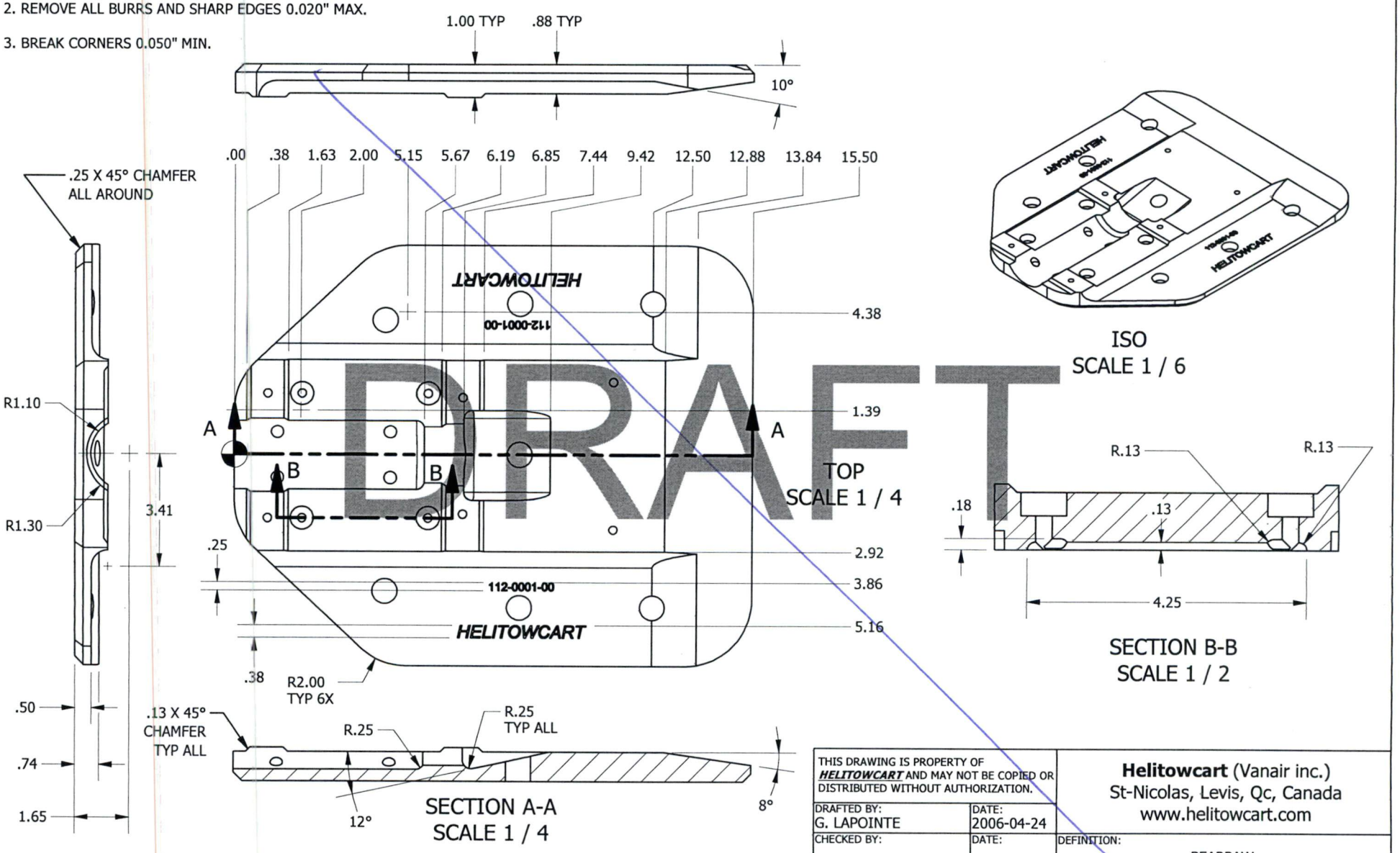
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX.

3. BREAK CORNERS 0.050" MIN.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD STREAMLINE	UHMW	---	1" THK.



DRAFT

ISO
SCALE 1 / 6

TOP
SCALE 1 / 4

SECTION B-B
SCALE 1 / 2

SECTION A-A
SCALE 1 / 4

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	ADDITION OF STREAMLINE PAD CONFIGURATION	S. BERNIER	M. ZGELA	2009-10-22
C	REMOVED REVISION LETTER FROM P/N AND MODIFIED ENGRAVING	R.B.R.	M. ZGELA	2013-08-09

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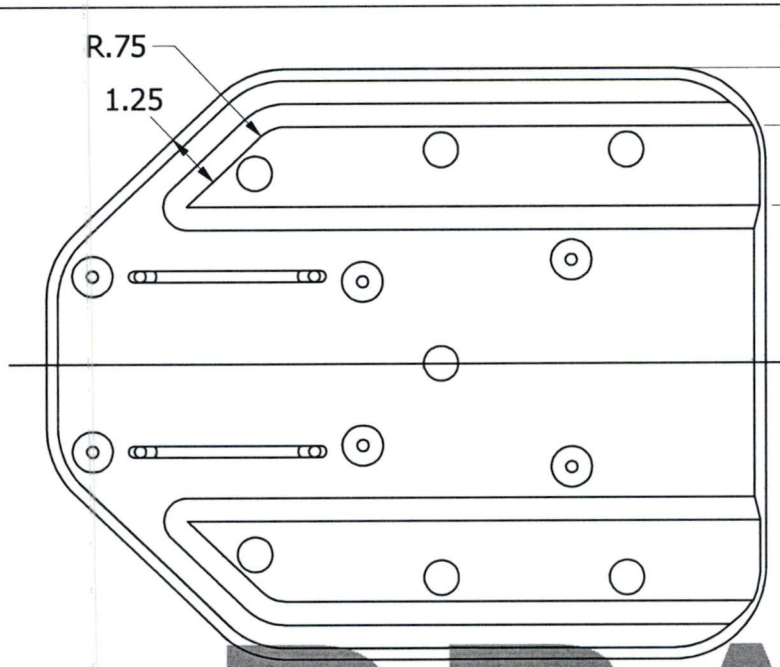
DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24
CHECKED BY:	DATE:
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A

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St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

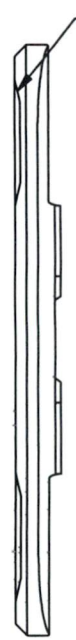
DEFINITION: BEARPAW PAD STREAMLINE

DRAWING NUMBER: 314-0001-01 REV: C

SHEET: 1 OF 3

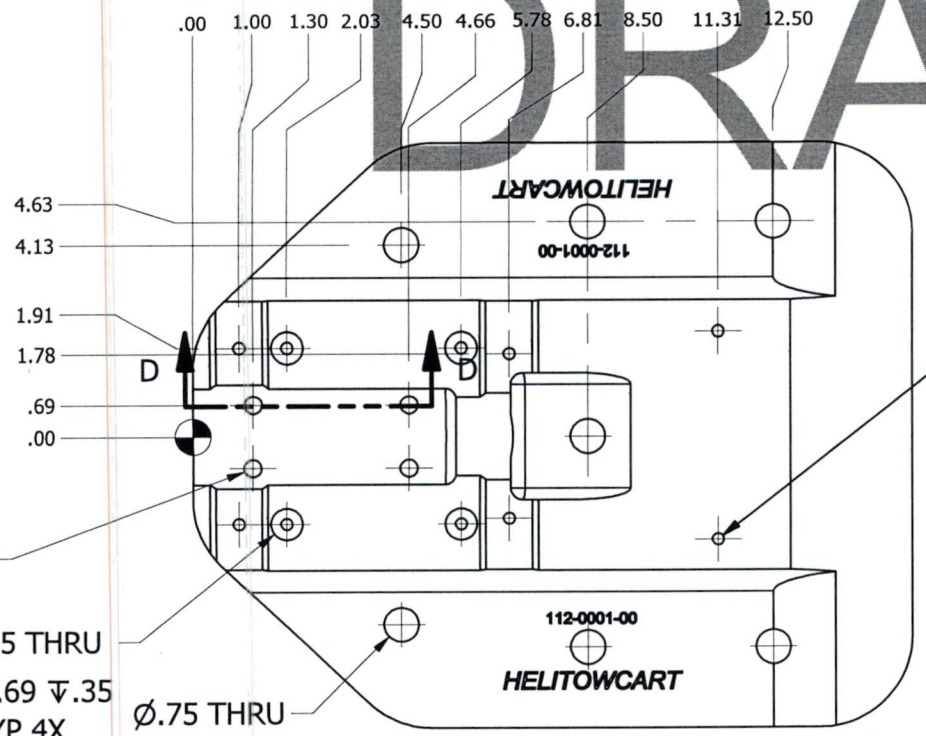


BOTTOM
SCALE 1 / 4

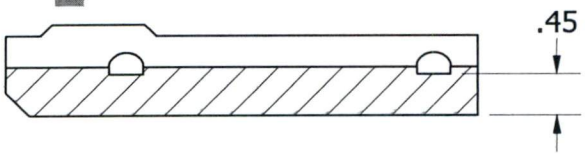


RIGHT
SCALE 1 / 4

DRAFT

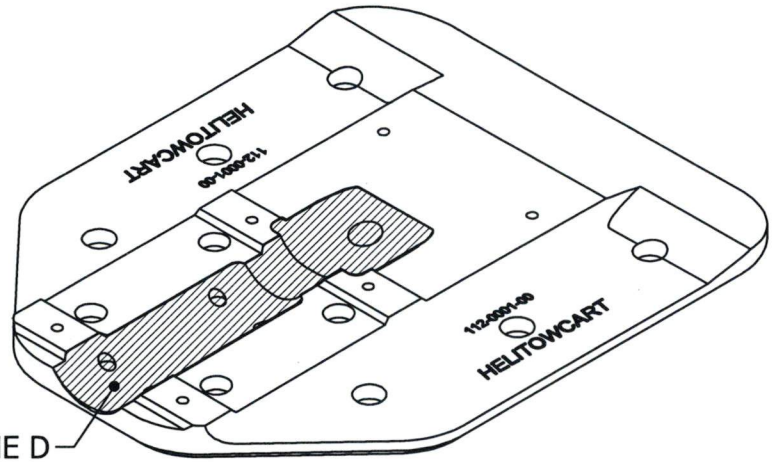


TOP
SCALE 1 / 4

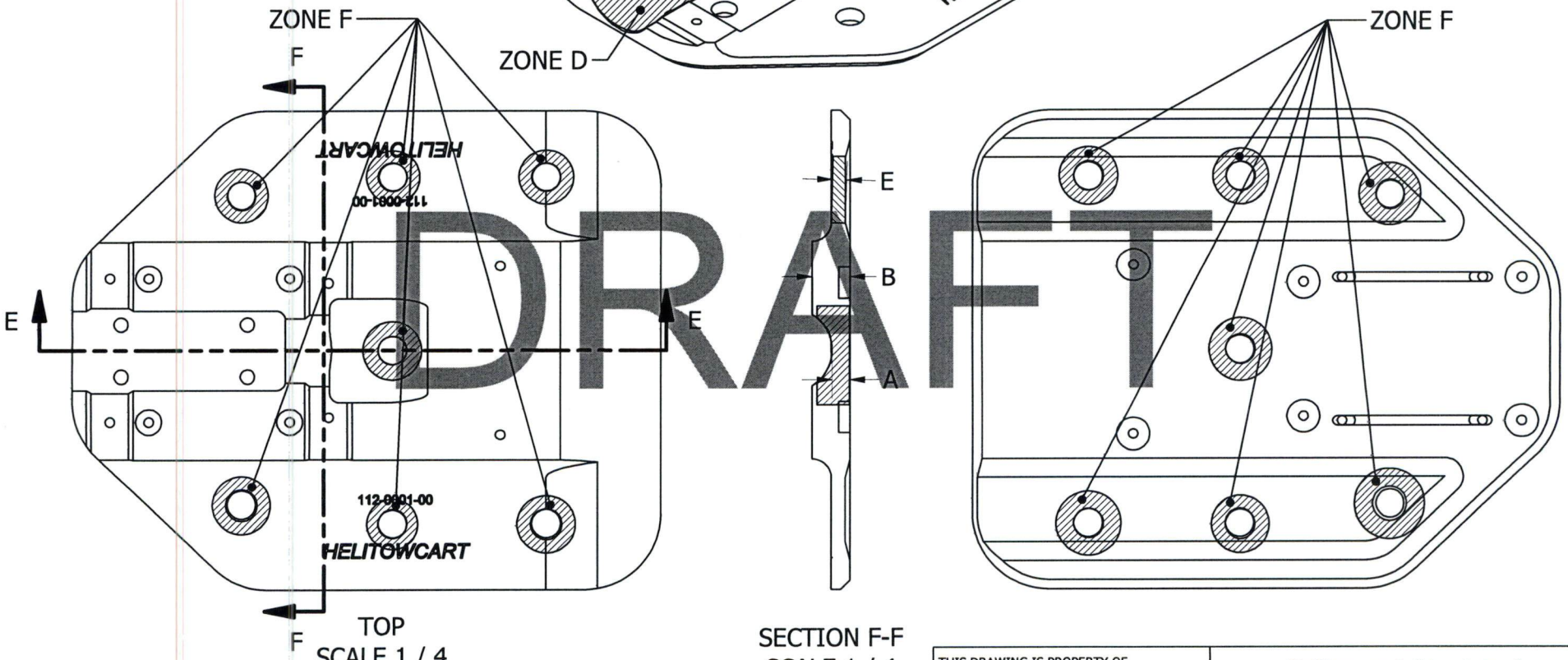


SECTION D-D
SCALE 1 / 2

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW PAD STREAMLINE
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0001-01 — REV: C
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A SCALE: N/A	SHEET: 2 OF 3



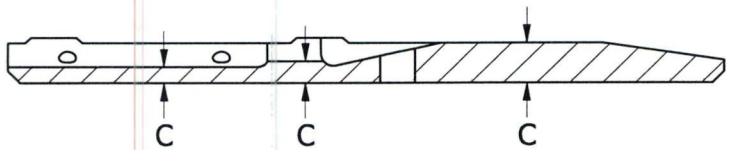
ISO
SCALE 1 / 4



DRAFT

TOP
SCALE 1 / 4

SECTION F-F
SCALE 1 / 4



SECTION E-E
SCALE 1 / 4

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24
CHECKED BY:	DATE:
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE A
	SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION:
BEARPAW
PAD STREAMLINE

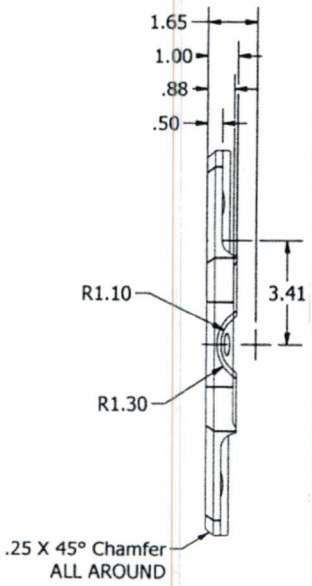
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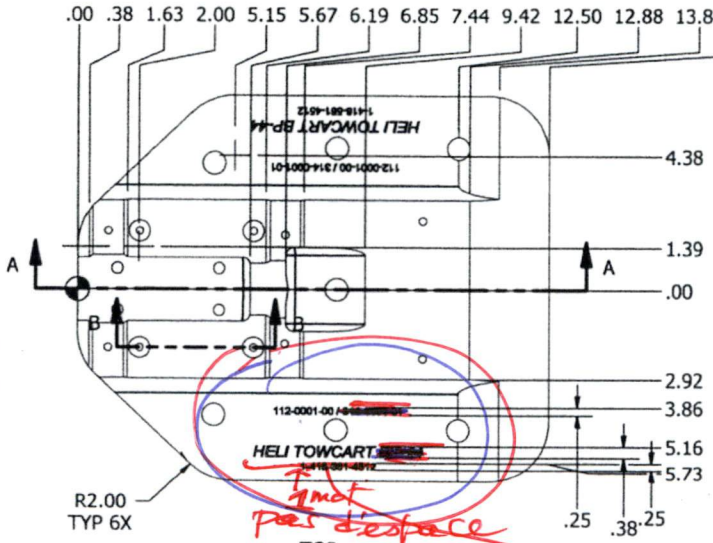
REV: C

SHEET: 3 OF 3

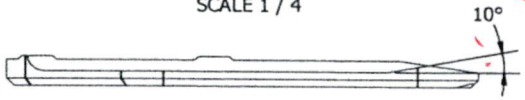
1		314-0001-01-B		1 OF 3

REVISIONS				
☐ REWORKABLE ☒ NONREWORKABLE ☐ VOTED ☐ NA				
ZONE	REV	DESCRIPTION	DRL & DATE	STRESS
	A	ISSUE FOR PRODUCTION		
	B	ADDITION OF STREAMLINE PAD CONFIGURATION		

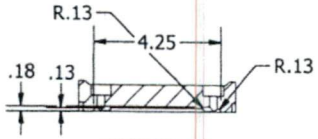




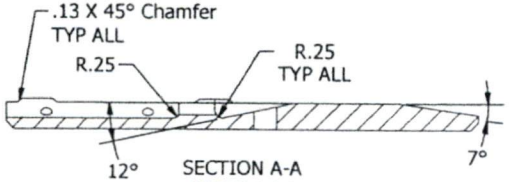
TOP
SCALE 1 / 4



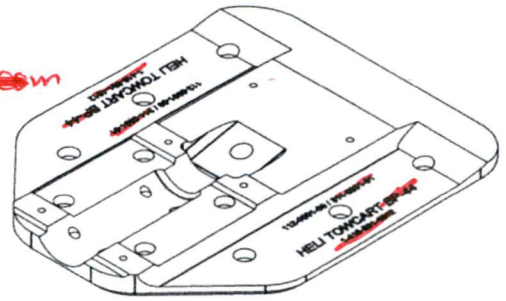
RIGHT
SCALE 1 / 4



SECTION B-B
SCALE 1 / 4



SECTION A-A
SCALE 1 / 4



ISO
SCALE 1 / 4

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994. DIMENSIONS AND TOLERANCING
2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX
3. BREAK CORNERS 0.050" MIN

ITEM	QTY	PART NUMBER	DESCRIPTION	VATERIA.	SIZE
1	1	314-0001-01-B	BEARPAW PAD	UHMW	1

UNLESS OTHERWISE SPECIFIED	DRAWN: S. BERNIER	2009-12-22	HELI TOW CART
DIMENSIONS ARE IN INCHES	ENGINEER: S. BERNIER	2009.12.22	BEARPAW PAD STREAMLINE
TOLERANCES: FRACTIONAL ±	CHECKED:		
ANGULAR: ±	STRESS:		
TWO PLACE DECIMAL ±	WEIGHT:		
THREE PLACE DECIMAL ±	APPROVED:		
MATERIAL:	APPROVED:		PART NAME: BEARPAW PAD STREAMLINE
MATERIAL SPEC:	APPROVED:		SIZE: B DRAWING NO.: 314-0001-01-B REV: B
NEXT ASSY:	APPROVED:	2009.12.22	SCALE: 1/4 DATE: 2009-12-22 SHEET 1 OF 3
PROPRIETARY AND CONFIDENTIAL			

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Visible

XX 0,03"

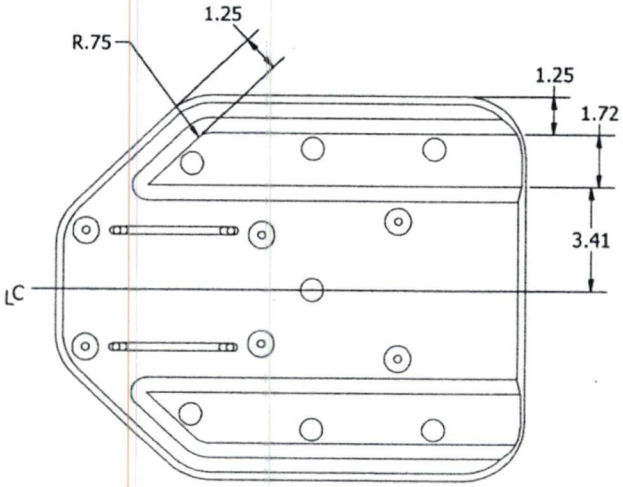
XXX 0,01"

2010.01.06

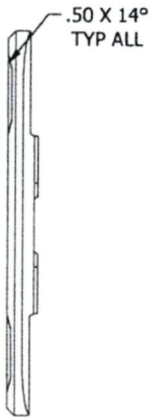
314-0001-01-B

314-0001-01-B

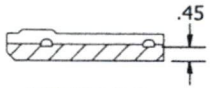
REVISIONS				
☐ REWORKABLE 2 NONREWORKABLE 3 VOIDED 4 NA				
ZONE	REV	DESCRIPTION	DR. & DATE	STRESS
	A	ISSUE FOR PRODUCTION		
	B	ADDITION OF STREAMLINE PAD CONFIGURATION		



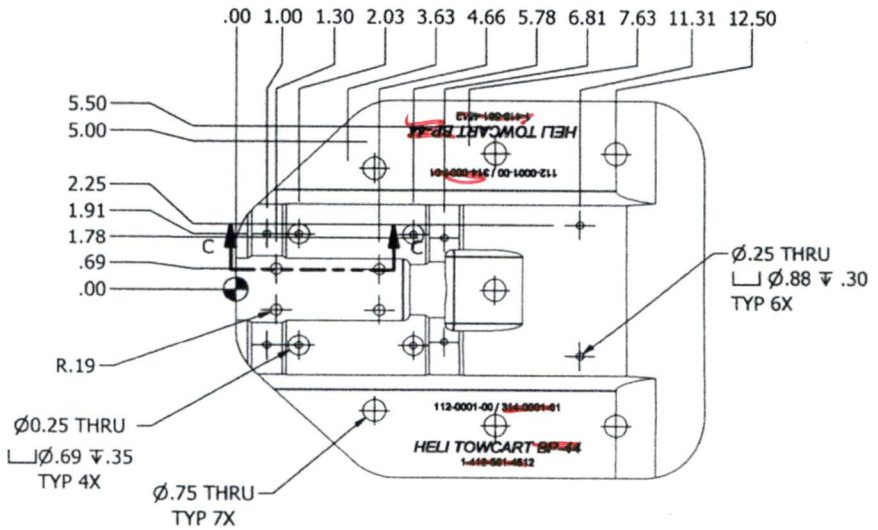
BOTTOM
SCALE 1 / 4



RIGHT
SCALE 1 / 4



SECTION C-C
SCALE 1 / 4



TOP
SCALE 1 / 4

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HELI TOW CART

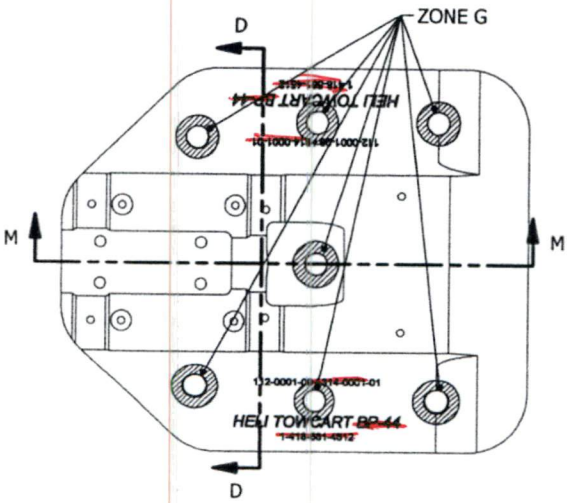
REARPAW
PAD STREAMLINE

SIZE B | DRAWING NO. 314-0001-01 | REV B

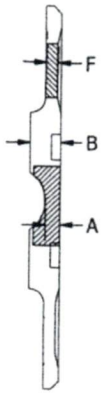
SHEET 2 OF 3

1	314-0001-01-B	3	OF 3

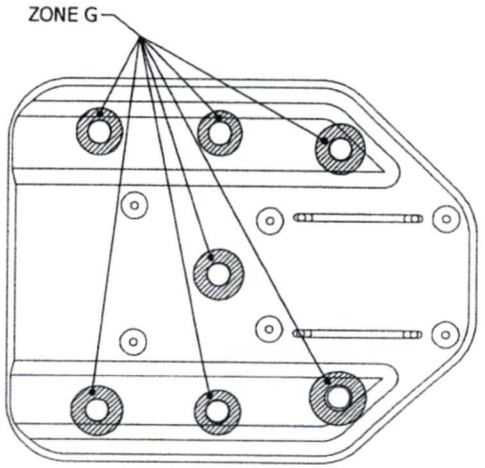
REVISIONS				
☐ REWORKABLE ☒ NONREWORKABLE ☐ VOTED ☐ NA			DR. & DATE	STRESS
ZONE	REV	DESCRIPTION		
	A	ISSUE FOR PRODUCTION		
	B	ADDITION OF STREAMLINE PAD CONFIGURATION		

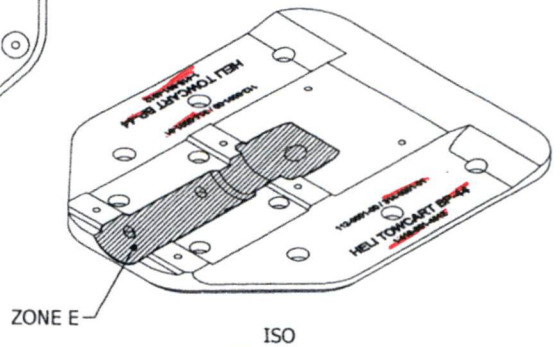


TOP
SCALE 1 / 4

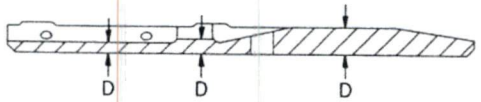


SECTION D-D
SCALE 1 / 4





ISO
SCALE 1 / 4



SECTION M-M
SCALE 1 / 4

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN S. BERNIER	2009-04-22	HELI TOW CART
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE: .X ±.1 .XX ±.01 .XXX ±.005 ANGULAR TOLERANCES ±1° ☐ 2 MACHINED SURFACES ☑	ENGINEERING S. O'CONNOR	2009-11-22	REARPAW PAD STREAMLINE
	WEIGHT		SIZE B DRAWING NO. 314-0001-01-B REV B
MATERIAL SPEC	APPROVED		
FINISH SPEC	APPROVED		
NEXT ASSY	APPROVED M. ZOLA	2009-11-22	

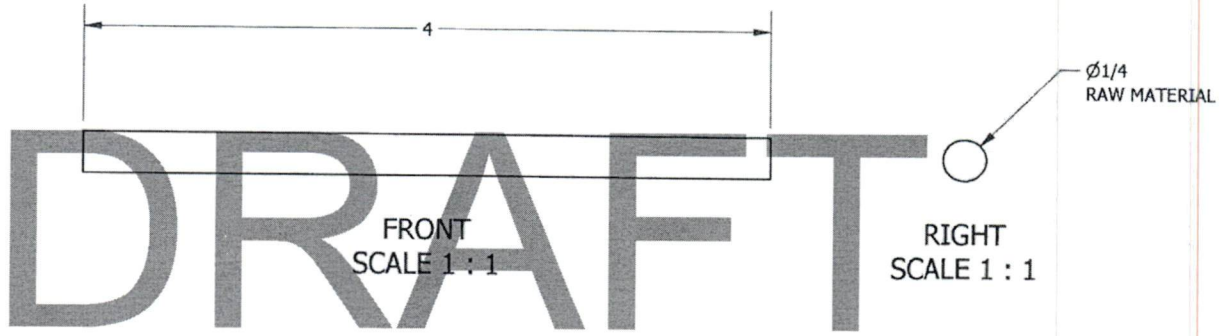
314-0001-01-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0002-15	BEARPAW - ICE BLADE ASSEMBLY	SS304	ANNEALED	ROD 1/4" DIA.



DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW ICEBLADE
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0002-15 REV B SHEET: 1 OF 1

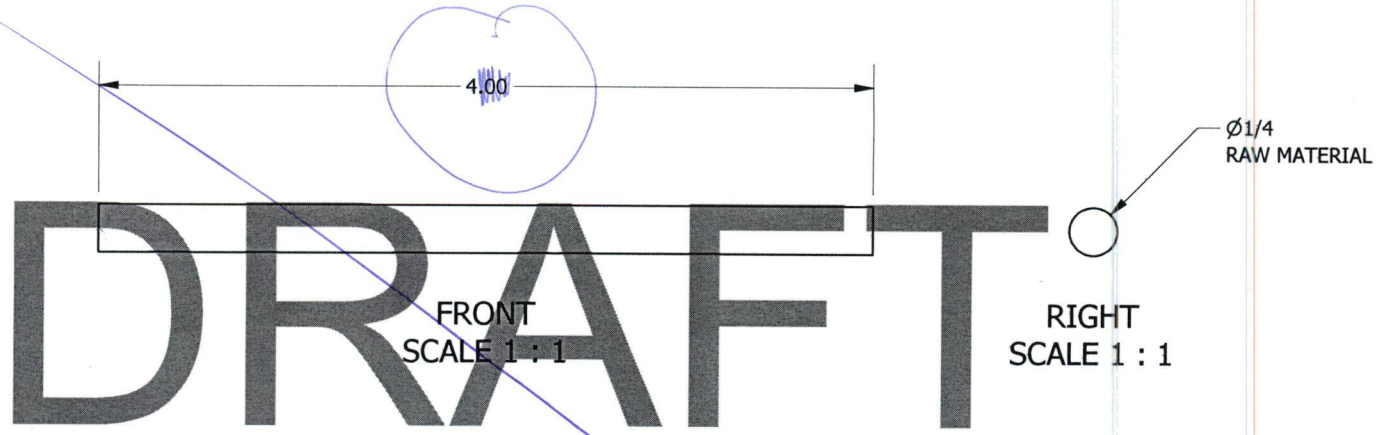
T.Q. Soumis à TC

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0002-15	BEARPAW - ICE BLADE ASSEMBLY	SS304	ANNEALED	ROD 1/4" DIA.



DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW ICEBLADE

DRAWING NUMBER: 314-0002-15 REV: B

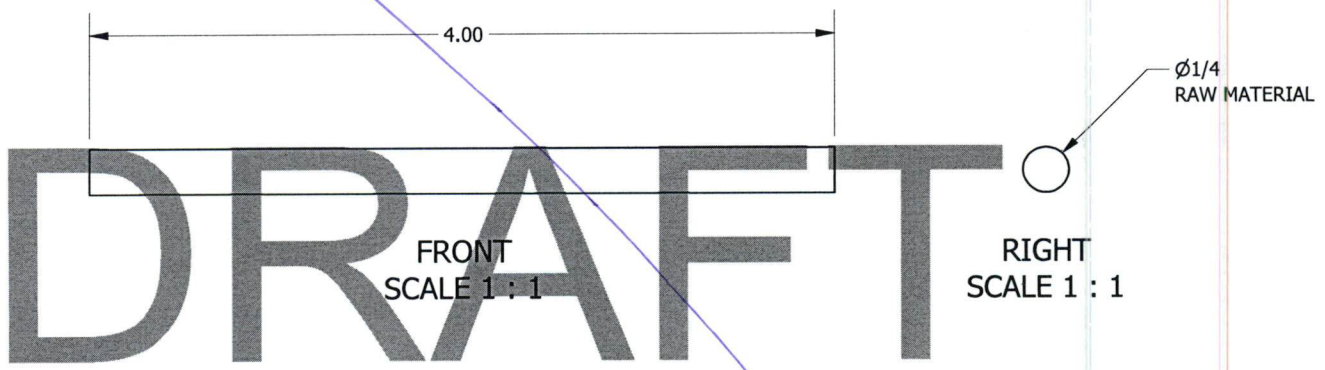
SHEET: 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0002-15	BEARPAW - ICE BLADE ASSEMBLY	SS304	ANNEALED	ROD 1/4" DIA.



DRAFT

FRONT
SCALE 1 : 1

RIGHT
SCALE 1 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24
CHECKED BY:	DATE:
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A

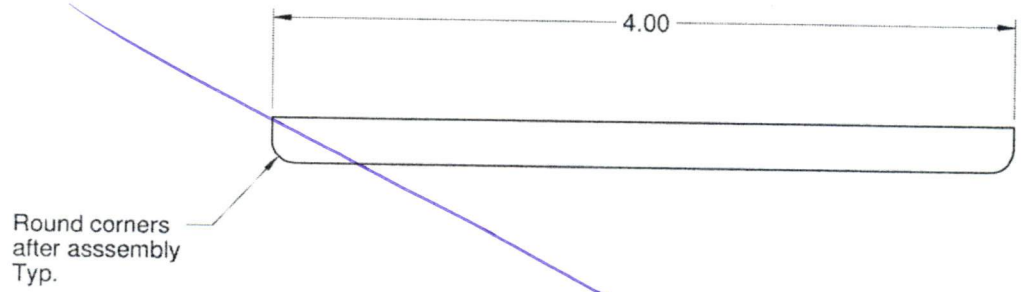
Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

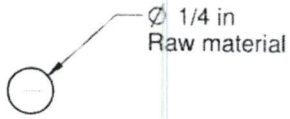
DEFINITION: BEARPAW ICEBLADE

DRAWING NUMBER: 314-0002-15

REV: B

SHEET: 1 OF 1





Note :
Raw material specification :
Stainless steel 304 annealed
Rod

Rev.	Description	Date	By
R1	Initial issue	03-08-06	G.L.

HELI TOW CART

Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
Fax : (418) 836-2291
www.helitowcart.com

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TOLERANCES					
1/X ± 1/32" X.XX ± 0.010" X.XXX ± 0.005" ANGLE ± 1° PROJECTION	Titre / Title: Bearpaw - Iceblade			Matériel / Material: See Note	
	Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format: A	Échelle / Scale: 1 : 1	Page #: 1 de 1
	Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: ~~VNR084~~		Rev.#: ~~R1~~
	Approuvé par / Approved by: D. Lapointe	Date: (yyyy-mm-dd) 06.03.10	Numéro de pièce / Part Number: 314-0002-15 A		Rev.#: A

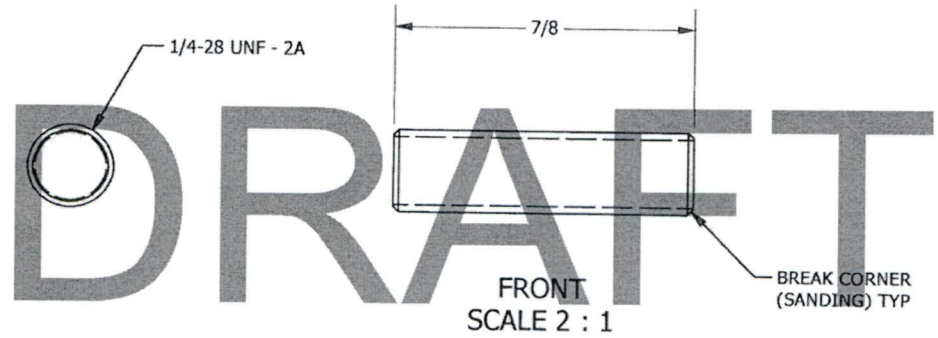
314-0002-15-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0004-15	BEARPAW - ICEBLADE THREADED ROD	SS304	ANNEALED	1/4-28 UNF - 2A



DRAFT

FRONT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24
CHECKED BY:	DATE:
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION:
BEARPAW
ICEBLADE THREADED ROD

DRAWING NUMBER: 314-0004-15 REV: B

SHEET: 1 OF 1

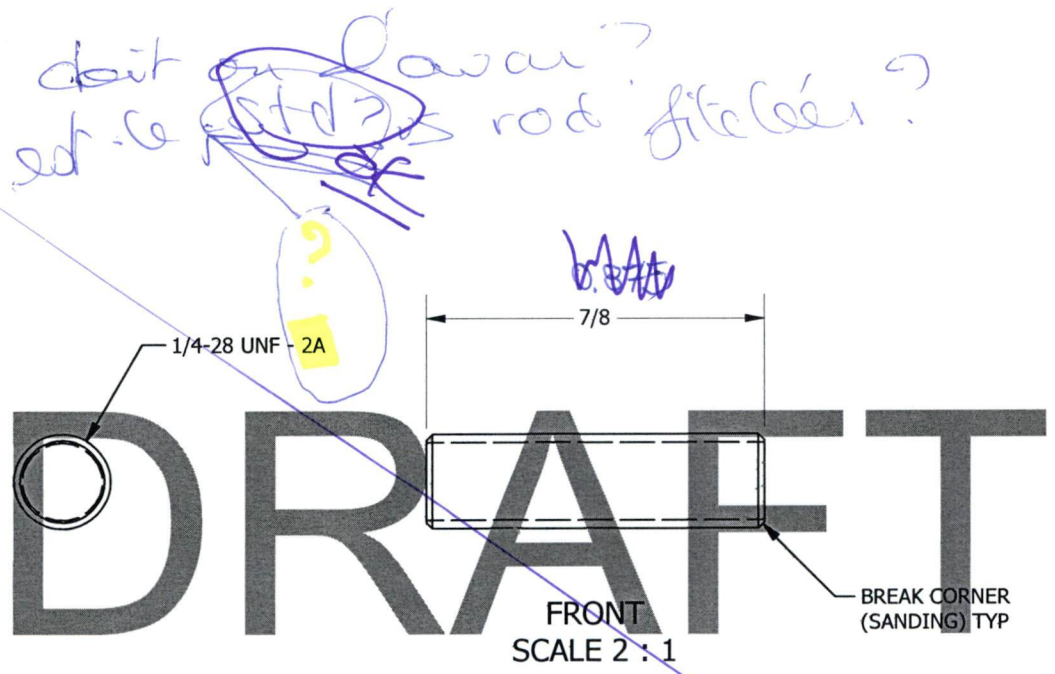
T.G. Soumis à TC

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0004-15	BEARPAW - ICEBLADE THREADED ROD	SS304	ANNEALED	1/4-28 UNF - 2A



DRAFT

FRONT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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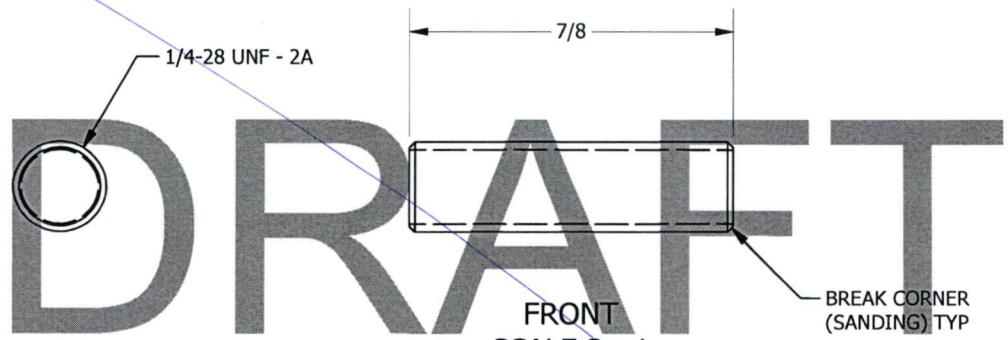
DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW ICEBLADE THREADED ROD
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0004-15 — REV: B
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0004-15	BEARPAW - ICEBLADE THREADED ROD	SS304	ANNEALED	1/4-28 UNF - 2A



DRAFT

FRONT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

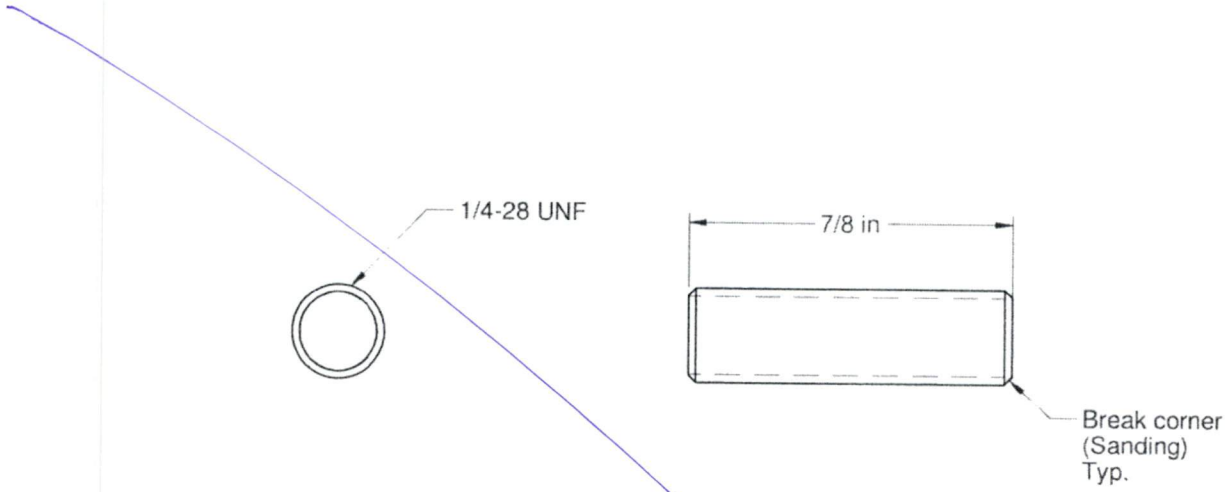
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St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24
CHECKED BY:	DATE:
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A

DEFINITION:
BEARPAW
ICEBLADE THREADED ROD

DRAWING NUMBER: 314-0004-15
REV: B
SHEET: 1 OF 1



Note :
Raw material specification :
Stainless steel 304 annealed
Threaded rod 1/4-28 UNF

Rev.	Description	Date	By
R1	Initial issue	03-08-06	G.L.

TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ± 0.005"
ANGLE ± 1°
PROJECTION

HELI TOW CART

Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
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Tél. : (418) 561-4512
Fax : (418) 836-2291
www.helitowcart.com

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Titre / Title			Matériel / Material:	
Bearpaw - Iceblade threaded rod			See Note	
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format : A	Échelle / Scale: N/A	Page #: 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: ~~VNR085~~		Rev.#: ~~R1~~
Approuvé par / Approved by: P. Baril	Date: (yyyy-mm-dd) 06.03.10	Numéro de pièce / Part Number: 314-0004-15A		Rev.#: A

314-0004-15-A

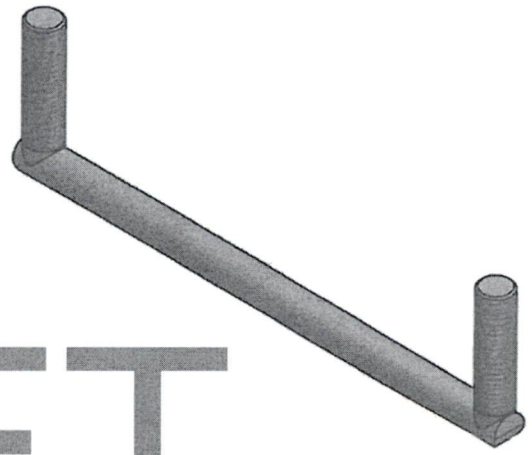
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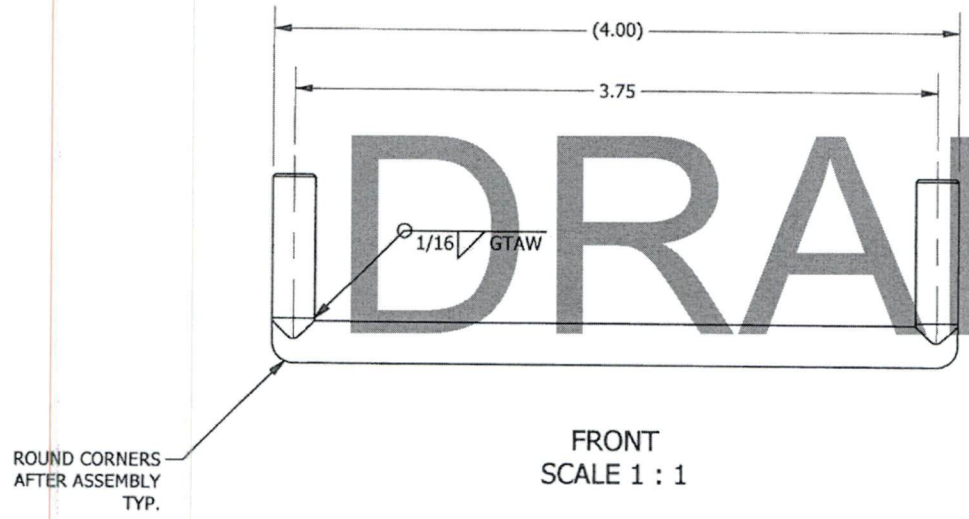
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX.

3. FILLER MATERIAL AWS A-5.9 / ASME SFA-5.9 MGSS308L

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0002-15	BEARPAW - ICE BLADE ASSEMBLY	SS304	ANNEALED	ROD 1/4" DIA.
2	2	314-0004-15	BEARPAW - ICEBLADE THREADED ROD	SS304	ANNEALED	1/4-28 UNF - 2A





DRAFT

FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW ICEBLADE ASSEMBLY
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0005-15 REV B SHEET: 1 OF 1

REVISION

REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

T.9. soumis à TC

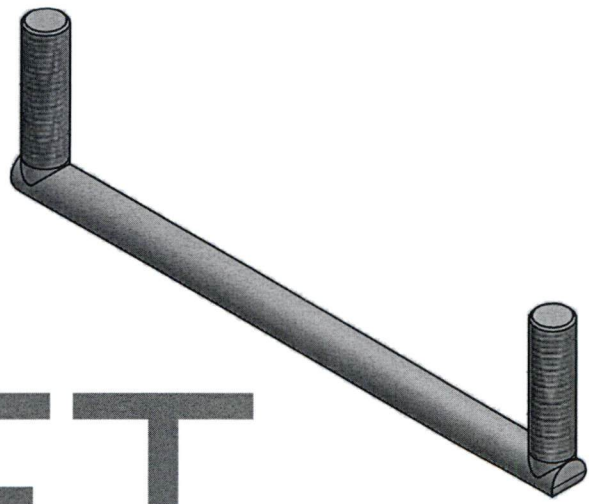
NOTES:

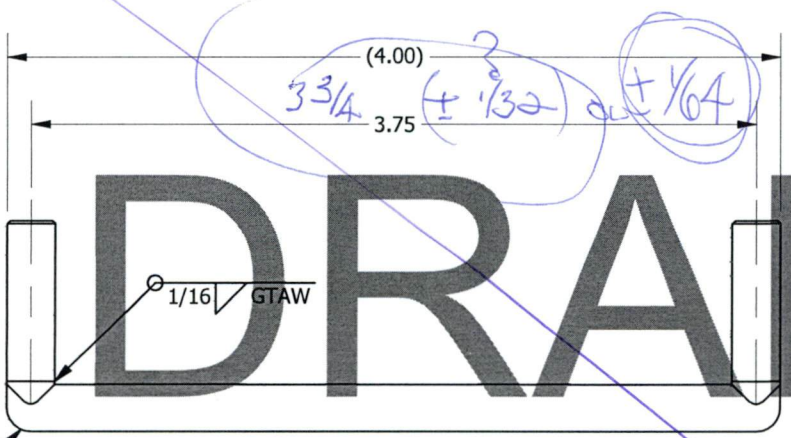
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2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX.

3. FILLER MATERIAL AWS A-5.9 / ASME SFA-5.9 MGSS308L

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0002-15	BEARPAW - ICE BLADE ASSEMBLY	SS304	ANNEALED	ROD 1/4" DIA.
2	2	314-0004-15	BEARPAW - ICEBLADE THREADED ROD	SS304	ANNEALED	1/4-28 UNF - 2A





DRAFT

FRONT
SCALE 1 : 1

SUPPL. NOTE!
- EBAV. TOUT LE TOUR R'1/64"
- PASSER DANS L'ACIDE
- Remplir fiche inspection

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW ICEBLADE ASSEMBLY
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0005-15 REV B SHEET: 1 OF 1

REVISION

REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

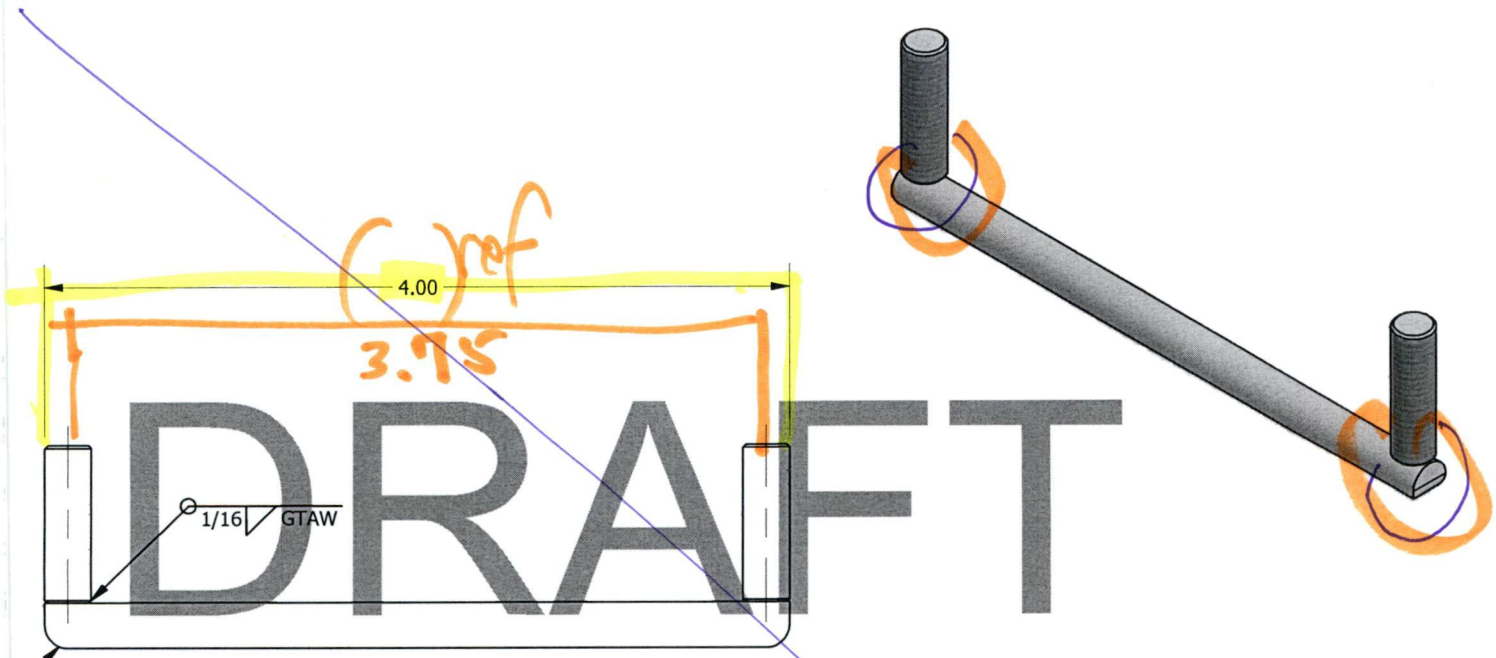
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 1/62" MAX.

3. FILLER MATERIAL AWS A-5.9 / ASME SFA-5.9 MGSS308L

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0002-15	BEARPAW - ICE BLADE ASSEMBLY	SS304	ANNEALED	ROD 1/4" DIA.
2	2	314-0004-15	BEARPAW - ICEBLADE THREADED ROD	SS304	ANNEALED	1/4-28 UNF - 2A



ROUND CORNERS AFTER ASSEMBLY TYP.

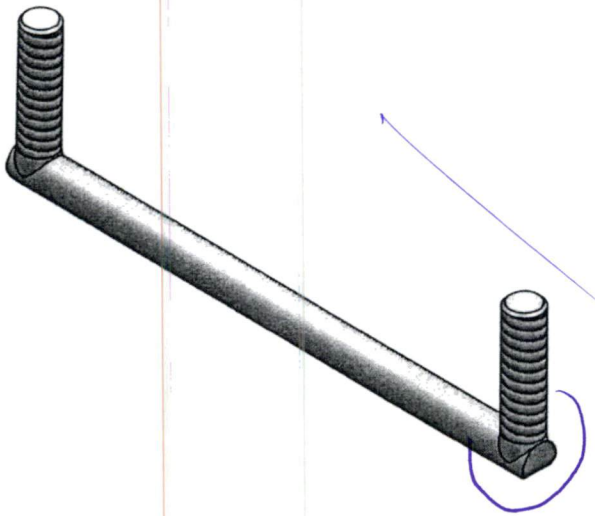
FRONT
SCALE 1 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-04-24
B	REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

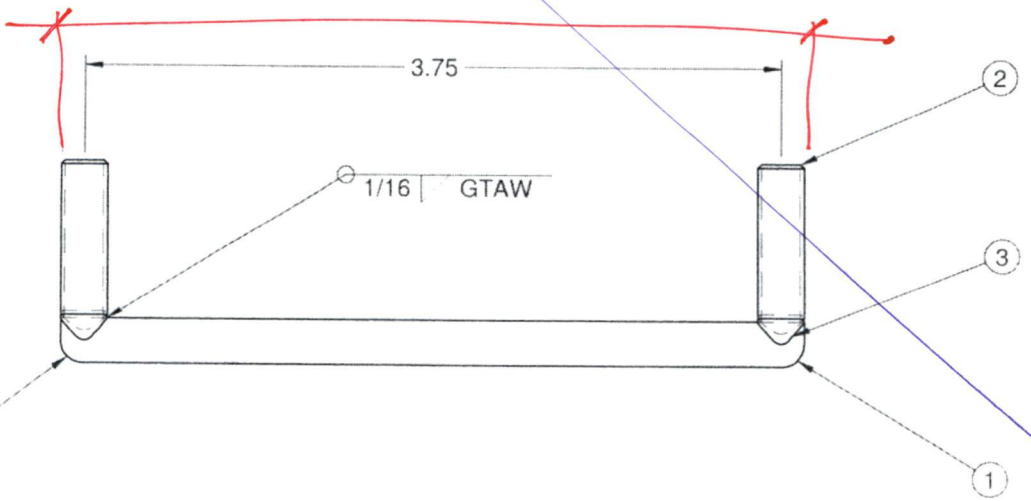
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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW ICEBLADE ASSEMBLY
APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0005-15 — REV: B
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 1 OF 1

N°	Qty:	Description	D #
1*	1	Bearpaw - Iceblade	314-0002-15-A
2*	2	Bearpaw - Iceblade threaded rod	314-0004-15-A
3*	2	Filler Material AWS A-5.9 / ASME SFA-5.9	MGSS308L



Mettre une cote mesurable.
Ex:



Rev.	Description	Date	By
R1	Initial issue	03-08-06	G.L.

HELI TOW CART

Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
Fax : (418) 836-2291
www.helitowcart.com

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TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ± 0.005"
ANGLE ± 1°
PROJECTION

Titre / Title			Matériel / Material:	
Bearpaw - Iceblade assembly				
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format: A	Échelle / Scale: N/A	Page #: 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: ~~VNR086~~		Rev.#: ~~R1~~
Approuvé par / Approved by: N. Boutin	Date: (yyyy-mm-dd) 06.03.10	Numéro de pièce / Part Number: 314-0005-15-A		Rev.#: A

314 - 0005 - 15 - A

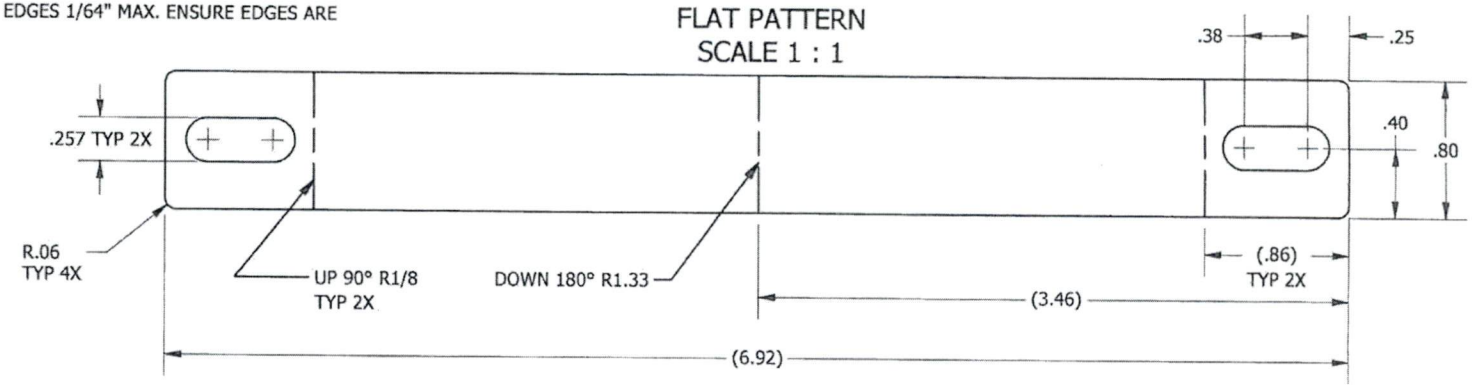
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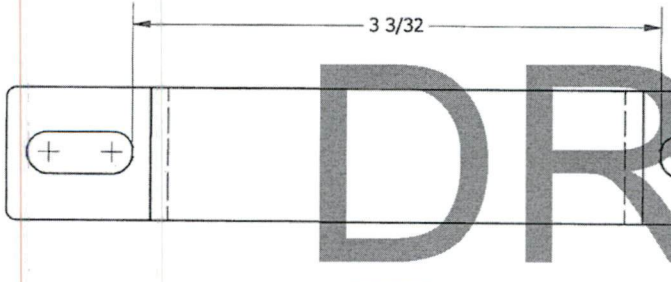
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12

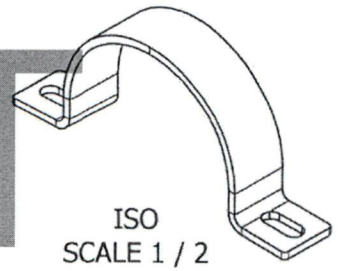
FLAT PATTERN
SCALE 1 : 1



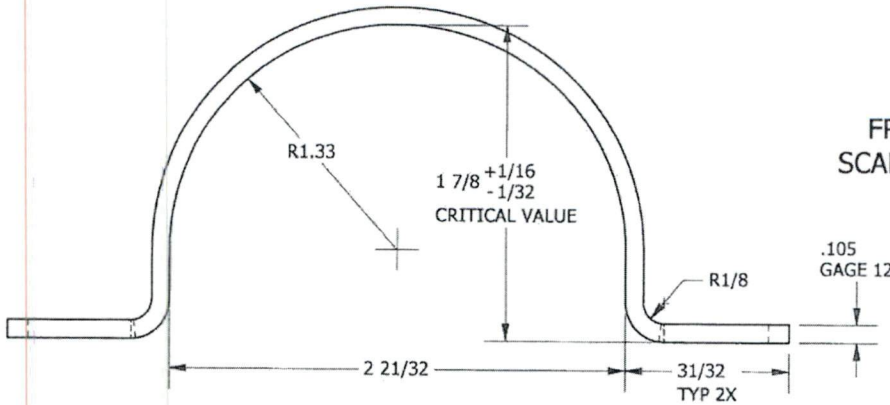


TOP
SCALE 1 : 1

DRAFT



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	0.800 WAS 0.750 - GAGE 12 WAS 14	G.LAPOINTE	M. ZGELA	2006-07-31
C	MODIFIED BEND RADIUS FROM 1/16" TO 0.120"	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006/04/24	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2006/04/24	
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°	UNITS: INCH	
	SIZE: A	
	SCALE: N/A	

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION:
BEARPAW
U-SHAPED CLIP

DRAWING NUMBER: 314-0006-15 REV: C

SHEET: 1 OF 1

T.Q. Soumis à TC

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING

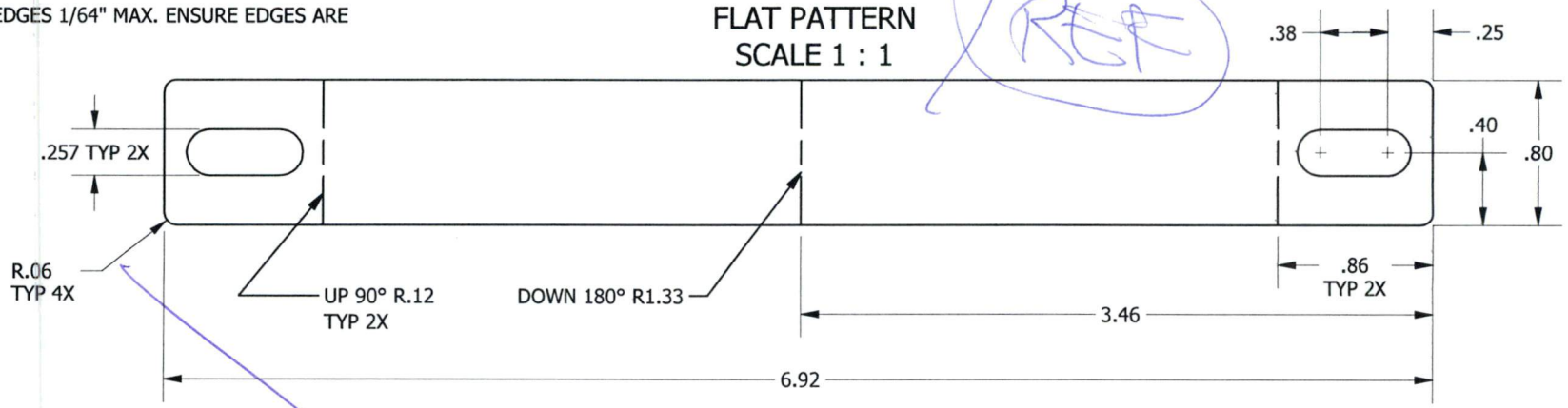
2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

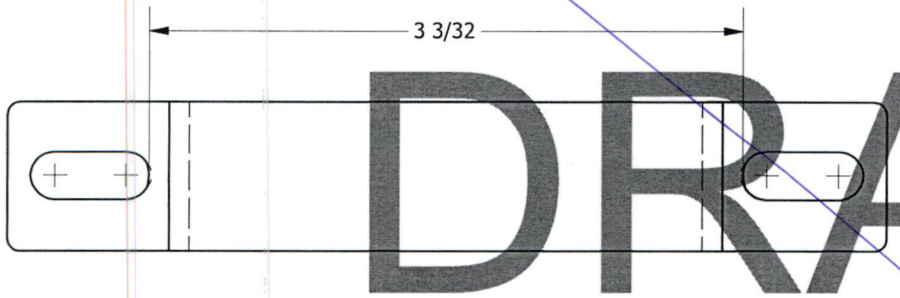
3. FILL CLIENT INSPECTION FORM.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12

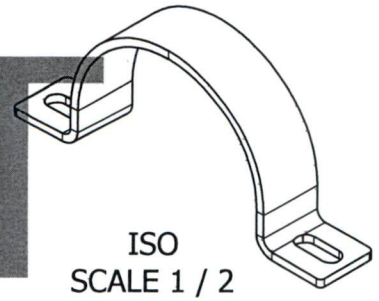
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FLAT PATTERN
SCALE 1 : 1



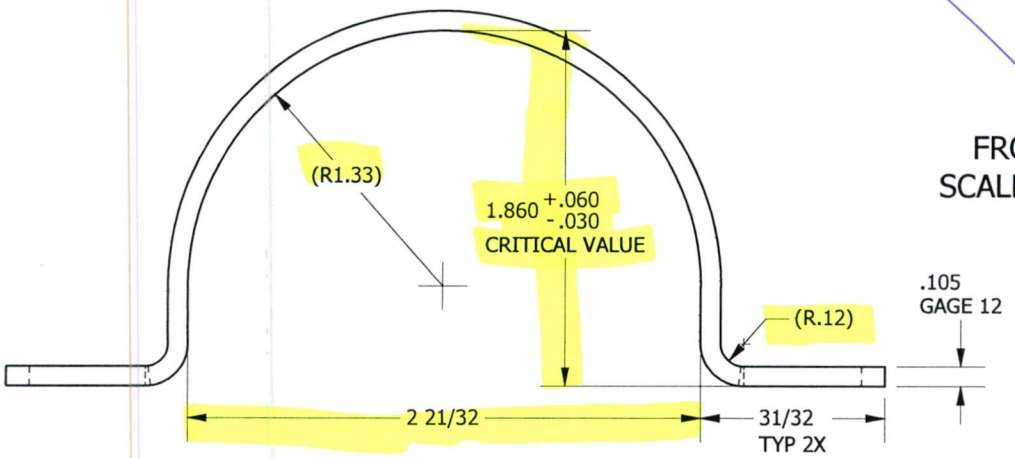


TOP
SCALE 1 : 1



ISO
SCALE 1 / 2

DRAFT



FRONT
SCALE 1 : 1

SUPPLIER NOTE:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT
PASSER DANS L'ACIDE
REMPLIR INSP CLIENT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE		2006-04-24
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C	MODIFIED BEND RADIUS FROM 1/16" TO 0.120"	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW U-SHAPED CLIP
APPROVED TCCA BY:	DATE:	
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°	UNITS: INCH	DRAWING NUMBER: 314-0006-15
	SIZE: A	REV: C
	SCALE: N/A	SHEET: 1 OF 1

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING

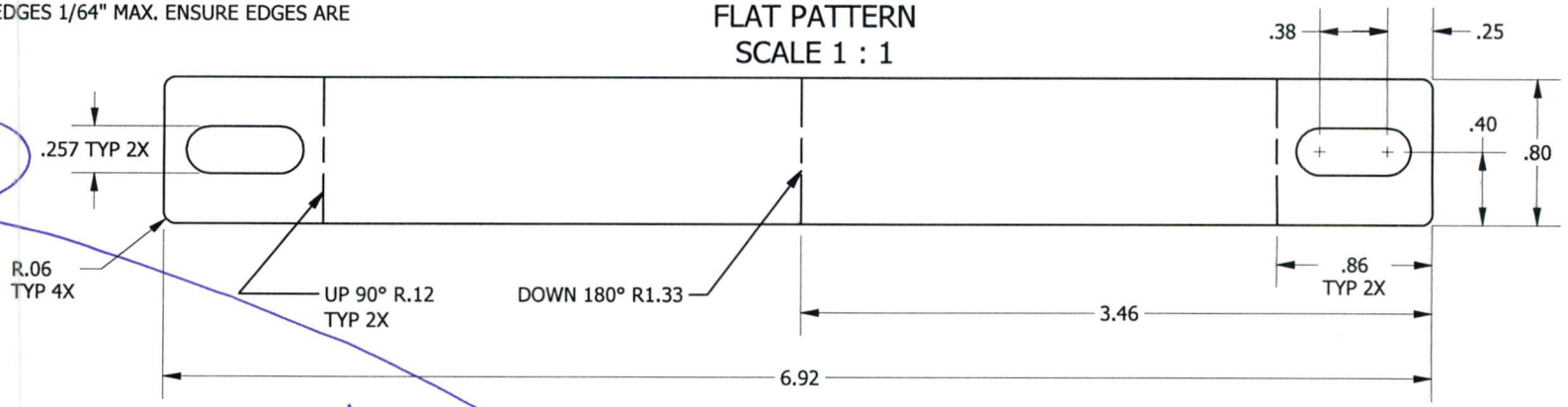
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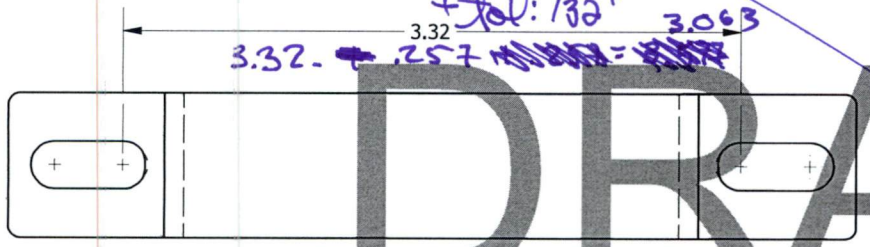
3. FILL CLIENT INSPECTION FORM.

4. peinture française à galbant

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12

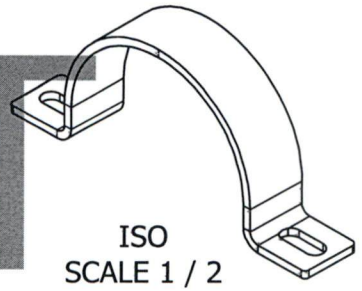
FLAT PATTERN
SCALE 1 : 1



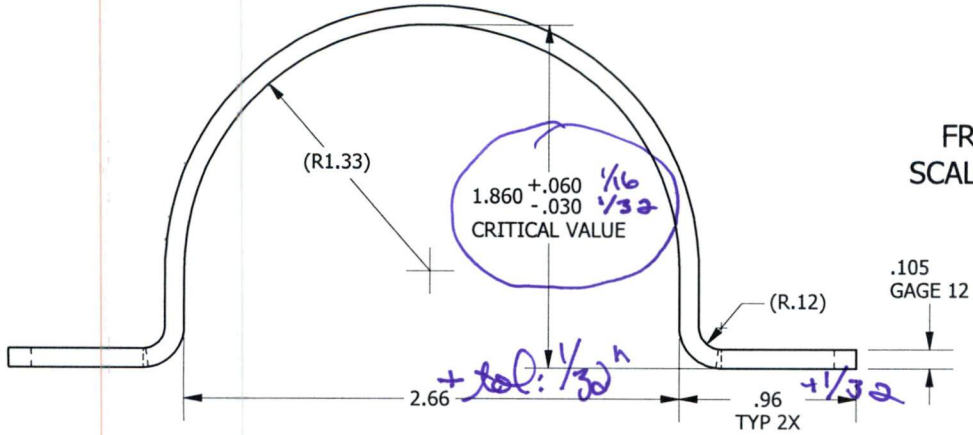


TOP
SCALE 1 : 1

DRAFT



ISO
SCALE 1 / 2



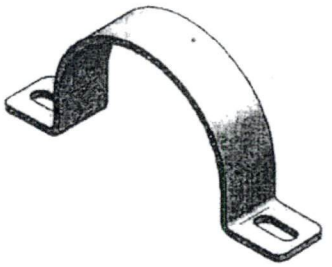
FRONT
SCALE 1 : 1

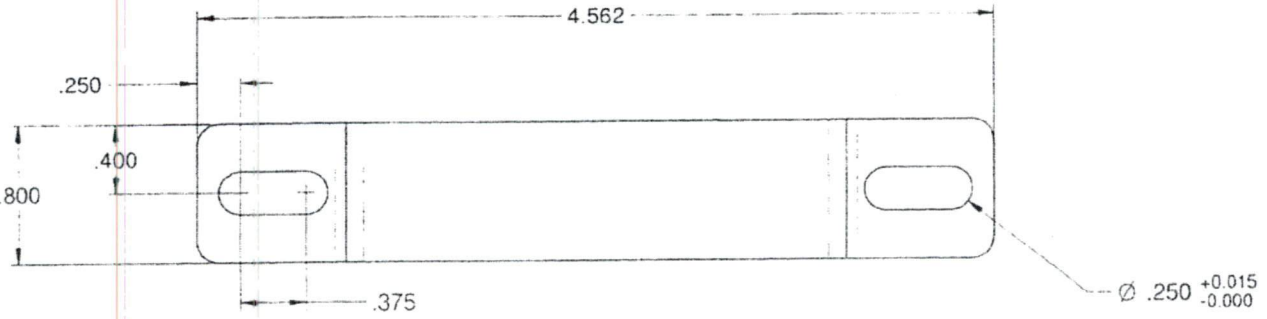
Note: soudure galbant

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE		2006-04-24
B	0.800 WAS 0.750 - GAGE 12 WAS 14	G.LAPOINTE	M. ZGELA	2006-07-31
C	MODIFIED BEND RADIUS FROM 1/16" TO 0.120"	R.B.R.	M. ZGELA	2013-08-09

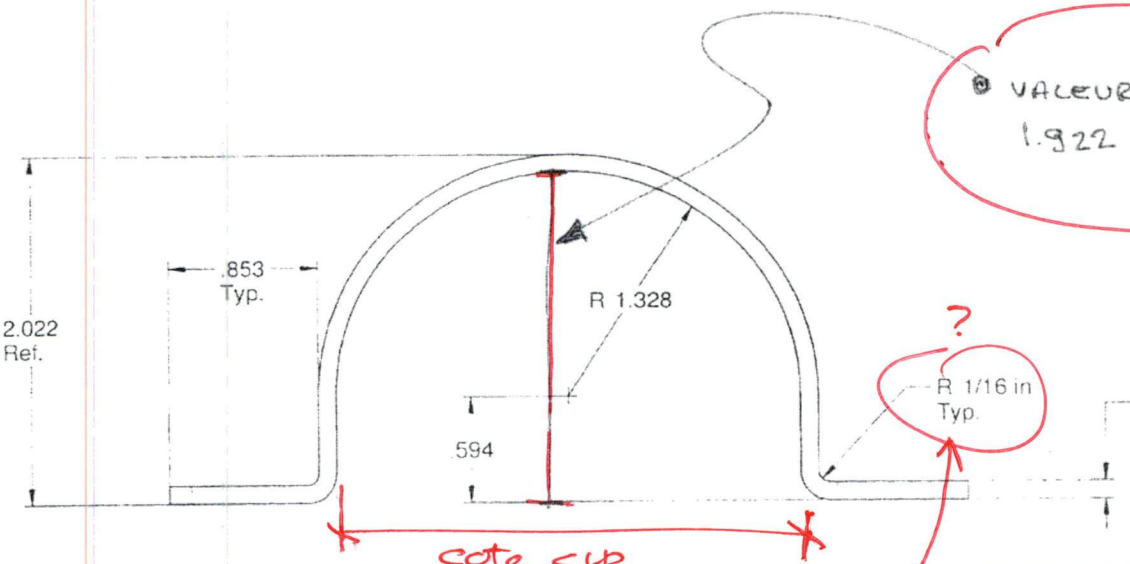
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DRAFTED BY: G. LAPOINTE	DATE: 2006-04-24	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW U-SHAPED CLIP
APPROVED TCCA BY:	DATE:	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0006-15 REV C SHEET: 1 OF 1





Attention



Note :
Raw material specification :
Stainless steel 304 annealed
Sheet gage 12

? Vérifier si rayon est réaliste en 12 ga. Dernier batch LNOB1202 a été plier haut sur le pli sur la slotte de chaque côté et donc on a eu anneau trop haut

Rev.	Description	Date	By
R04	.800 was 0.750 - Gage 12 was 14	31-07-06	G.L.
R03	Issue for production	04-04-06	G.L.

TOLERANCES
X ± 1/32"
X.XX ± 0.010"
X.XXX ±
ANGLE ± °
PROJECTION

HELI TOW CART

Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
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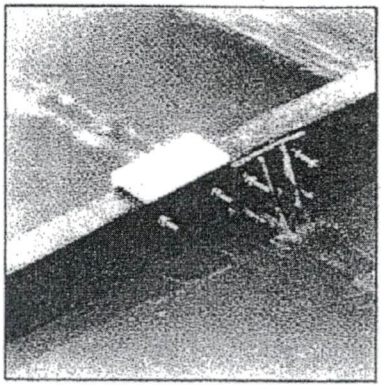
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Titre / Title: Bearpaw - U Shaped clip				Matériel / Material: See Note	
Dessiné par / Drawing by: G. Lapointe	Date (yyyy-mm-dd): 2006-04-24	Format: A	Échelle / Scale: N/A	Page # 1 de 1	
Vérifié par / Checked by:	Date (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR087		Rev # R04	
Approuvé par / Approved by: N. Barlow	Date (yyyy-mm-dd): 06.08.01	Numéro de pièce / Part Number: 314-0006-15-B		Rev #	

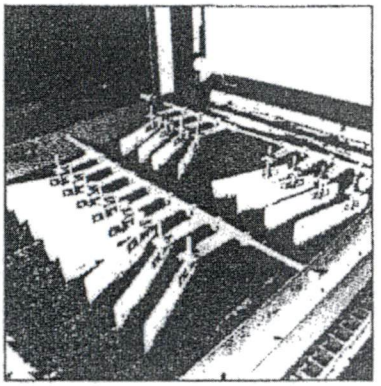
for future order 314-0006-15-B.

314-0008-01 rev A

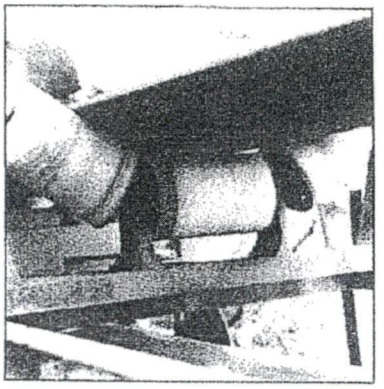
Propriétés du UHMW TIVAR®



TIVAR flight wear shoes do not corrode, and outwear shoes made from metals, urethanes and other plastics.



TIVAR is used in many OEM applications to solve abrasion and corrosion problems. The scrapers on this belt press are of TIVAR.



Conveyor rollers lined with TIVAR reduce belt wear. Wet sludge doesn't build up as on conventional rollers.

PHYSICAL PROPERTIES

PROPERTY		TEST METHOD	UNIT	TYPICAL VALUE
Specific Gravity		ASTM D-792	g/cm³	0.94
Yield Strength	@73°F	ASTM D-638	p.s.i.	3400
Ultimate Tensile Strength	@73°F	ASTM D-638	p.s.i.	6800
Break Elongation	@73°F	ASTM D-638	%	450
Yield Strength	@250°F	Stress Strain Diagram	p.s.i.	700
Ultimate Tensile Strength	@250°F	Stress Strain Diagram	p.s.i.	3300
Break Elongation	@250°F	Stress Strain Diagram	%	900
Hardness —Rockwell "R" Scale		ASTM D-785	—	64
Shore "D" Scale		ASTM D-2240	—	67
Flexural Modulus of elasticity		Bend Creep/1 min. value	p.s.i.	110,000
Shear Strength		ASTM D-732	p.s.i.	3500
Izod Impact +	@23°c	ASTM D-256A	ft-lbs/in. notch	No Break
−	@140°c	ASTM D-256A	ft-lbs/in. notch	No Break
Environmental Stress Cracking	@F_{50}	ASTM D-1693 Mod	hrs.	6000
Water Absorption		ASTM D-570	—	NIL

COEFFICIENT OF FRICTION

UHMW Polymer has a lower coefficient of friction than glass. Together with its self-lubricating characteristics it is an ideal material for bearings, bushings, valves, wear strips or any application where sliding contact is encountered.

MATERIALS	STATIC	KINETIC	TEST METHOD
Mild Steel vs. Mild Steel	0.30-0.40	0.25-0.35	ASTM D-1894
Mild Steel vs. TIVAR-100	0.15-0.20	0.12-0.20	
TIVAR-100 vs. TIVAR-100	0.20-0.30	0.20-0.30	

DEFORMATION UNDER COMPRESSION - %								
TEMP°F	PSI COMPRESSION	INITIAL LOADING					PERMANENT DEFORMATION AFTER REMOVAL OF LOAD	
		10 MIN.	100 MIN.	1000 MIN.	1 DAY	56 DAYS	AFTER 1 MIN.	AFTER 24 HRS.
68°	282	1.5	1.7	1.8	1.9	2.4	0.9	0.6
	570	2.4	2.5	2.7	3.0	4.0	1.8	1.2
	850	3.0	4.0	4.5	5.0	5.1	2.7	1.8
	1140	4.0	5.0	6.0	7.0	7.5	3.8	2.4
	1420	5.0	6.5	7.5	8.0	9.0	4.5	2.9
	1700	7.0	7.5	8.0	10.0	11.0	5.4	3.5

CHEMICAL RESISTANCE

Hydrochloric acid (conc.) - no appreciable reaction up to 80°C

Nitric acid (20%) - less than 20% decrease in yield stress and ultimate tensile strength up to 80°C.

Sulphuric acid (50%) - no appreciable reaction up to 80°C. Less than 20% decrease in properties at 75% concentration.

Sodium hydroxide (caustic soda) - no appreciable reaction up to 80°C.

Sodium hypochlorate and most aqueous solutions of inorganic salts - no appreciable reaction up to 80°C.

Hydrocarbons and halogenated hydrocarbons -limited resistance. Each application should be evaluated.

314-0009-01 rev A

Ultra High Molecular Weight Polyethylene

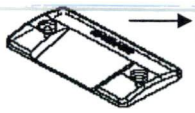
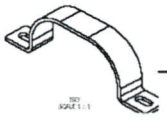
UHMWPE Typical Properties

Specific Gravity, 73°F	.944	
Tensile Strength @ Yield, 73°F	3250	psi
Tensile Modulus of Elasticity, 73°F	155,900	psi
Tensile Elongation (at break), 73°F	330	%
Flexural Modulus of Elasticity	107,900	psi
Compresive Strength at 2% deformation	400	psi
Compressive Strength 10% Deformation	1200	psi
Deformation Under Load	6-8	%
Compressive Modulus of Elasticity, 73°F	69,650	psi
Hardness, Durometer (Shore "D" scale)	69	
Izod Impact, Notched @ 73°F	30	ft.lbs./in. of notch
Coefficient of Friction (Dry vs Steel) Static	.17	
Coefficient of Friction (Dry vs Steel) Dynamic	.14	
Sand Wheel Wear/Abrasion Test	95	UHMW=100
Coefficient of Linear Thermal Expansion	11.0	in/in/°F x 10^{-5}
Melting Point (Crystaline Peak)	279-289	°F
Volume Resistivity	>10^{15}	ohm-cm
Surface Resistivity	>10^{15}	ohm-cm
Water Absorption, Immersion 24 Hours	Nil	%
Water Absorption, Immersion Saturation	Nil	%
Machinability Rating	5	1 = easy, 10 = difficult
Sheet Thickness Availability (Off the Shelf)	.250 - 2.0	inches

D. Barbeau 06.08.01

T.Q. soumis à T.C.

314-0010-00-J
Bearpaws Parts List

	Part Name	HTC P/N	Quantities per PAIR BP4466	BP44	BP350	BP130
PADS	Pad /BP44	314-0001-01	2	2		
	Pad /BP350	314-0018-01			2	
	Pad /BP130	314-0024-01				2
HARDWARE	Plastic bag 8x10	na	2	2	2	2
	Rear Filler block/BP44	314-0022-01	2	2		
	U-Clip / BP44	314-0006-15	4	4		
	U-Clip / BP350	314-0019-15			6	
	U-Clip / BP130	314-0026-15				4
	Low U-Clip/ BP44	314-0023-15	2	2		
	Shrink on U-Clips	314-0021-01	6	6	6	6
	L-Clip/BP130	314-0025-15				4
	Iceblade	263-0005-15	4	4	8	8
	Slotted clip support	314-0007-15	0	8	12	12
	Bolt - AN4-14A	261-0001-17	4		12	12
	Bolt - AN4-15A	261-0002-17	4	8		
	Bolt - AN4-16A	261-0003-17	4	4		
	Nuts - MS20365-428 equiv: AN365-428A or MS21044N4	262-0001-17	20	20	28	28
	Washers - AN960-416	263-0001-17	32	40	40	40
	Filler block 1/4"	314-0012-01	4	4	12	
	Filler block 1/16"	314-0014-01	16	4		
	Filler block 1/8"	314-0015-01	4	4		12
DOCUMENTS	Plastic bag 9 x12	na	1	1	1	1
	Document - MDL/BP44	HTC-MDL-BP-R44-1000	1	1		
	Document - INST/BP44	314-0011-00	1	1		
	Document - MDL/BP350	HTC-MDL-BP-AS350-1000			1	
	Document - INST/BP350	314-0018-01-S			1	
	Document - MDL/BP130	HTC-MDL-BP-EC130-1000				1
	Document - INST/BP130	314-0031-00				1
	Can STC	na	1	1	1	1
	US STC	na	1	1	1	1
PACKAGING	Box / BP44 16.5x13x3.5"	na	1	1		
	Box / BP350 & BP130 24x21x3"	na			1	1
	Label /BP44	273-0001-04	1	1		
	Label /BP350 & BP130	273-0002-04			1	1

Nature of modifications: New format, added BP130

Usage Interne Seulement
Pas soumis à TC

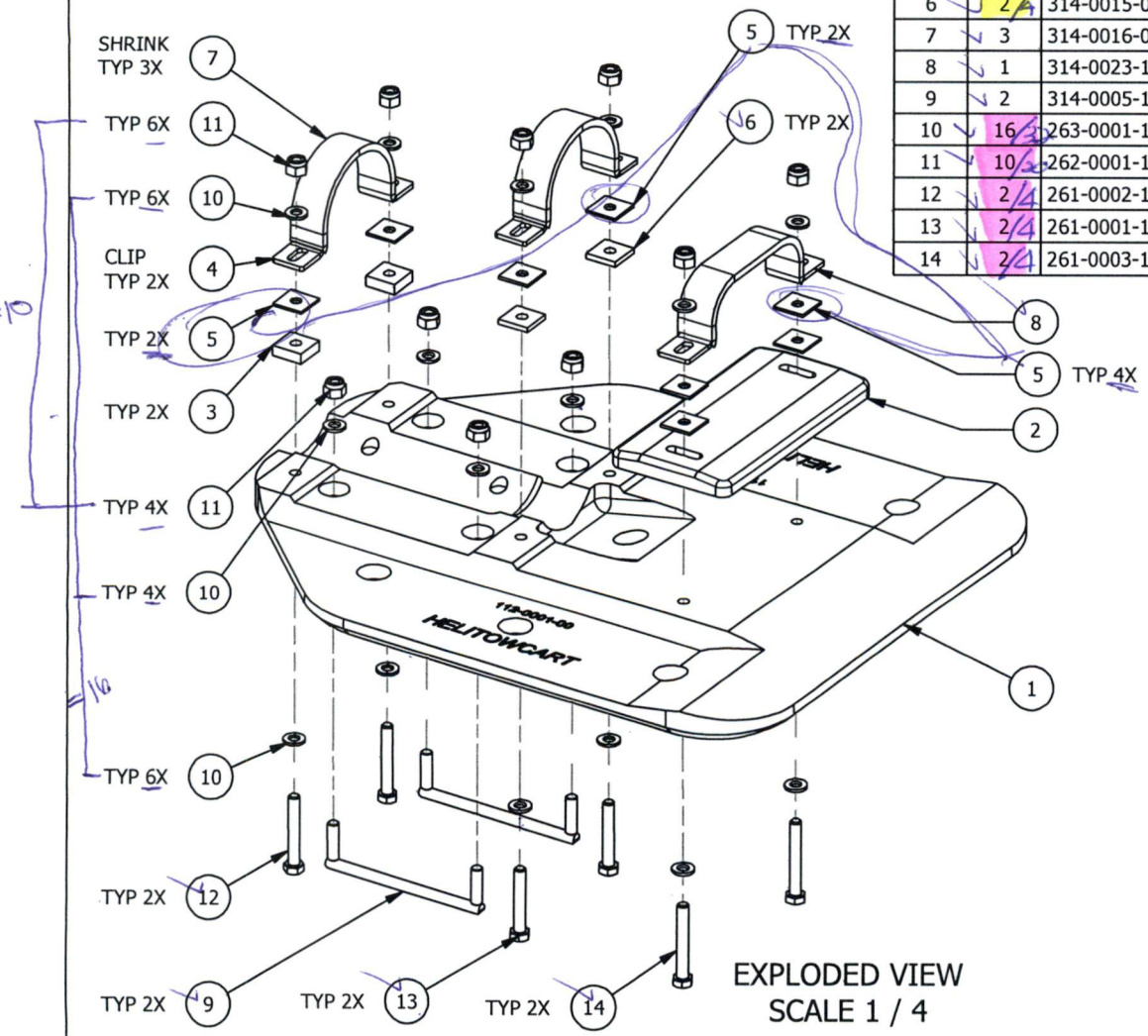
PER PAD / PAIR

NOTES:

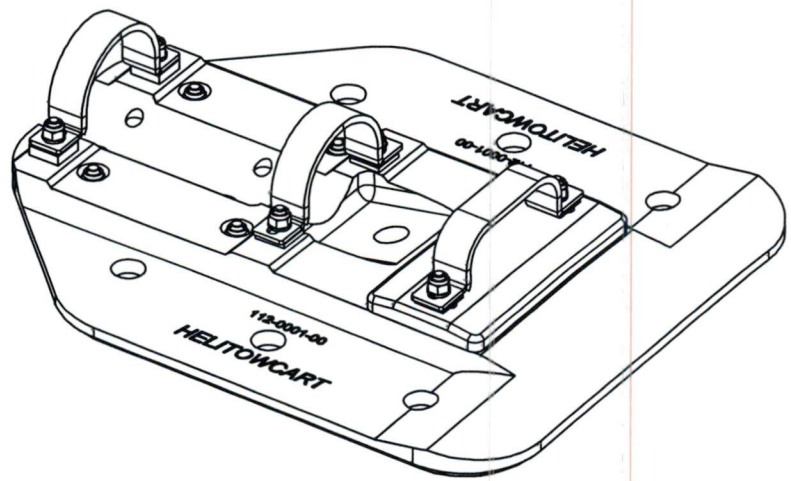
1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2/4	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	8/16	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2/4	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	314-0016-05	BEARPAW - SHRINK (FIT-221)	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	STEEL	---	---
10	16/32	263-0001-17	WASHER (AN960-416)	STEEL	---	1/4
11	10/24	262-0001-17	NYLON NUT (AN365-428A)	STEEL	---	1/4
12	2/4	261-0002-17	HEX BOLT (AN4-15A)	STEEL	QQ-P-416A	1/4-28
13	2/4	261-0001-17	HEX BOLT (AN4-14A)	STEEL	---	---
14	2/4	261-0003-17	HEX BOLT (AN4-16A)	STEEL	QQ-P-416A	1/4-28



EXPLODED VIEW
SCALE 1 / 4



ASSEMBLED
SCALE 1 / 4

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE	M. ZGELA	2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

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CHECKED BY:	DATE:
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1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A
	SCALE: N/A

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DEFINITION: BEARPAW ASSEMBLY

DRAWING NUMBER: 112-0001-00

REV: F

SHEET: 1 OF 1

DRAFT 6

HELI TOW CART BY VANAIR

314-0011-00 Rev E

BearPaw Model BP44
Installation Instructions - R44/R66

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300 Hour or Yearly Inspection Details	p.6
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Annex A (BearPaw Assembly Drawing)
Annex B (BearPaw Pad Allowable Damage Drawing)

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T. Q. Solutions & TC

INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw BP44 on the Robinson R44 and R66 helicopters..

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table 1:

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	877 A, Alphonse-Desrochers, St-Nicholas, Levis, Quebec, Canada, G7A 5K6	Tel:1 (418) 561-4512 Fax:1 (418) 836-4575 info@helitowcart.com

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Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

Table 2 – Robinson Helicopter Effectivity

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0002, 0004 thru 9999, except 1140	Transport Canada: H-97 FAA: H11NM
R44 II	1140, 10001 and subsequent	Transport Canada: H-97 FAA: H11NM
R66	0002 and subsequent	Transport Canada: H-111 FAA: R00015LA

Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

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INSTALLATION

BearPaw Installation

Reference Documentation:

[1] Robinson R44 – Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
[2] Robinson R66 – Maintenance Manual & Instruction for Continued Airworthiness. RTR660.
[3] Annex A – BearPaw Assembly Drawings (112-0001-00)

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] or [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

Step 2: Ice Blade Installation (Optional)

- Install the two ice blades (314-0005-15) under BearPaw pad as per drawing 112-0001-00, ref [3];
- Insert washer (263-0001-17 / AN960-416) through threaded part of ice blade and secure with nut (262-0001-17 / AN365-428A).

Step 3: BearPaw Preparation

- Insert washers (263-0001-17 / AN960-416) through all six bolts: 2x(261-0001-17 / AN4-14A), 2x(261-0002-17 / AN4-15A) & 2x(261-0003-17 / AN4-16A) as per drawing 112-0001-00, ref [3];
- Insert all six bolts and washers through BearPaw pad;
- Insert rear filler block (314-0014-01) at aft of BearPaw;
- On each side at **front** of BearPaw, insert one 1/4" filler block (314-0012-01) and one 1/16" filler block (314-0014-01);
- On each side at **center** of BearPaw, insert one 1/8" filler block (314-0015-01) and one 1/16" filler block (314-0014-01);
- On each side at **aft** of BearPaw, insert **two** 1/16" filler blocks 2x(314-0014-01);

  Note: Except for the rear filler block (314-0022-01) the use of filler blocks mentioned above may be increased, decreased, replaced or complemented by the use of washers (263-0001-17 / AN960-416). The use of bolts mentioned above may be replaced by longer or shorter AN4 bolts as required.

Step 4: BearPaw Installation

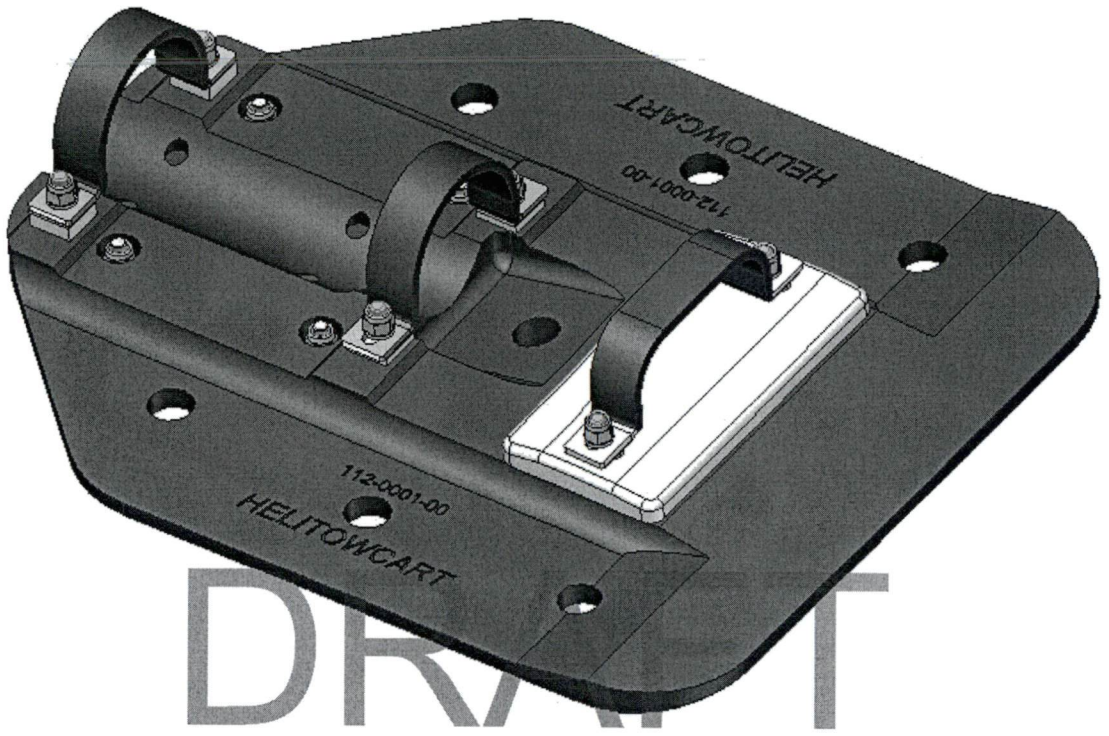
- Position the BearPaw under skid at the aft intersection with the cross tube with narrow edge pointing forward.
- Insert both U-Shaped Clips (314-0006-15) through bolts at front and center of BearPaw as per drawing 112-0001-00, ref [3];
- Insert the Low U-Shaped Clip (314-0023-15) through bolts at rear of BearPaw;
- Insert washer (263-0001-17 / AN960-416) & screw nuts (262-0001-17 / AN365-428A) for a tight fit. Maximum torque on nuts is 60 in.-lb.
- Adjust rear filler block (314-0022-01) position using slotted holes to remove all gap between rear filler block and skid.
- Ensure BearPaw holds strongly into position. If required, 1/16" filler blocks (314-0014-01) can be removed to increase tightening.

Step 5: Final Step

- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

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Figure 1 – BearPaw Model BP44/BP66 (112-0001-00)

BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] and [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);

Step 2: BearPaw Removal

- Remove nuts (262-0001-17 / AN365-428A), washers (263-0001-17 / AN960-416), U-Shaped Clips (314-0006-15) and Low U-Shaped Clip (314-0023-15);
- Remove BearPaw pad (314-0001-01);
- Inspect skid tubes to confirm serviceability;
- Re-install aft wearshoe with screws as per reference [1] or [2];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

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Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data – R44, R44 II and R66 helicopters

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	10.0 lbs 4.54 kg	0.0 in. (0.00 m)	0.0 lbs-in (0.0 kg-m)	128.5 in (3.26 m)	1285 lbs-in (14.8 kg-m)

Parts Lists

The Helitowcart BearPaw detailed part list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Name
BearPaw Model BP44	**1**	**112-0001-00**	**BearPaw Assembly**
BearPaw pad	1	314-0001-01	BearPaw – Pad
Filler blocks rear	1	314-0022-01	BearPaw – Filler block Rear
Filler blocks 1/4"	2	314-0012-01	BearPaw – Filler block 1/4"
U-Shaped Clips	2	314-0006-15	BearPaw – U Shaped Clips
Filler blocks 1/16"	8	314-0014-01	BearPaw – Filler block 1/16"
Filler blocks 1/8"	2	314-0015-01	BearPaw – Filler block 1/8"
Low U-Shaped Clips	1	314-0023-15	BearPaw – Low U Shaped Clips
Washers	12	263-0001-17	Washer (AN960-416)
Nuts	6	262-0001-17	Nylon Nut (AN365-428A)
Bolts	2	261-0001-17	Hex Bolt (AN4-14A).
Bolts	2	261-0002-17	Hex Bolt (AN4-15A).
Bolts	2	261-0003-17	Hex Bolt (AN4-16A).
IceBlade Option Model OIB	**2**	**314-0005-15**	**IceBlade Assembly**
Nuts	4	262-0001-17	Nylon Nut (AN365-428A)
Washers	4	263-0001-17	Washer (AN960-416)

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INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured;
- Check that BearPaws are free from visible damage;
- If damage is found, verify allowable damage according to:
  Table 5 – Tolerances for Cracks & Wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01 page 3 of 3).

Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 300 flying hours or yearly whichever comes first;
- The Helitowcart BearPaw can be inspected concurrently with the R44/R66 landing gear inspection;
- Recommended tolerance for performance of inspection is +/- 10% of the 300 hours period.;
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

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300 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal";
- Inspect all parts for damage & wear. See table & figure below for allowable damage;
- Replace all damaged parts;
- Replace parts worn beyond the tolerances indicated below;
- See Tolerances for cracks & wear:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01 page 3 of 3).

Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,050	
D	N/A	N/A	No cracks allowed in zone D
E	N/A	N/A	No cracks allowed in zone E

Overhaul Requirements

- Not applicable for the designated application of this device.

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REVISIONS & APPROVAL

Revisions

Date	Rev	Nature of Revisions
August 09, 2013	E	Addition of Robinson R66 helicopter, removal of pocket version of the BearPaw and removal of revision letters from part numbers.
April 15, 2010	D	Addition of a rear U shaped clip in the Streamline BearPaw Pad configuration.
October 22, 2009	C	Introduction of new streamline BearPaw Pad configuration as alternate.
September 7, 2006	B	- Added filler blocks and heat shrink to product list. - Modified recommended bolt models (lengthened) - Revised inspection requirements from 100 hour to 300 hour intervals. - Identification of the IceBlade assembly as an optional feature.
June 12, 2006	A	Initial issue

Approval

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Internal Approval :		
Helitowcart inc.	Lucien Barbeau, President	August 09, 2013
External Approval :		
Transport Canada	Mirko Zgela, DAR #310	August 09, 2013

Annex A

See: BearPaw Assembly, drawing no. 112-0001-00.

Annex B

See: BearPaw Allowable Damage Drawing, drawing no. 314-0001-01 page 3 of 3.

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Annex A
BearPaw Assembly, Drawing no. 112-0001-00

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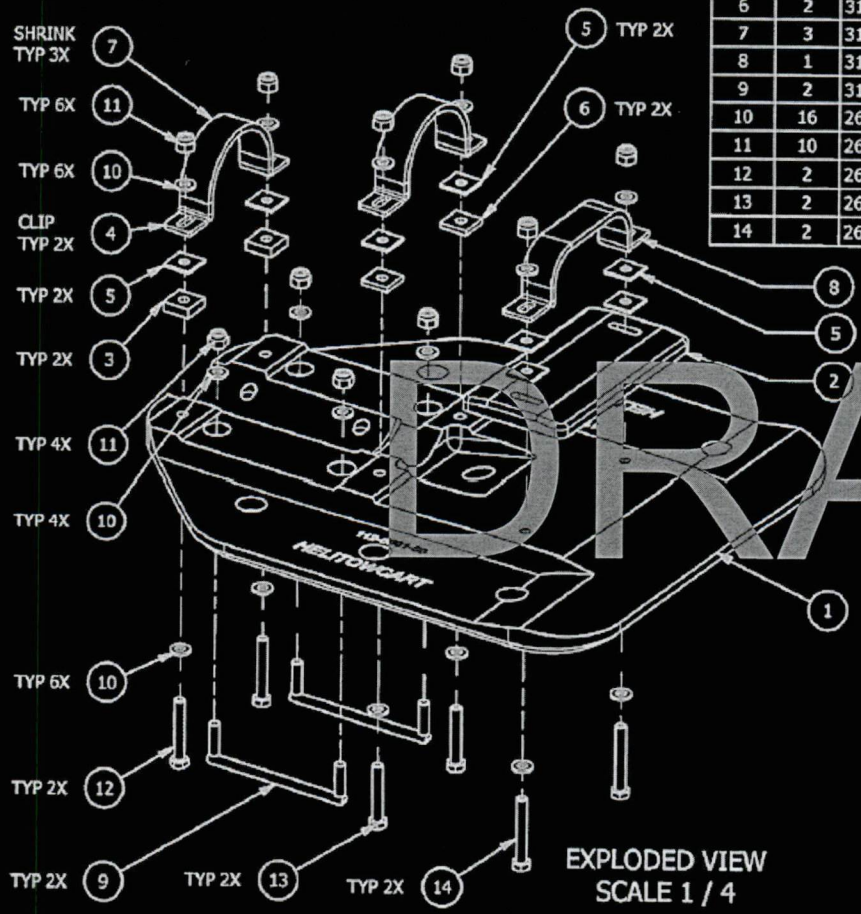
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NOTES:

1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

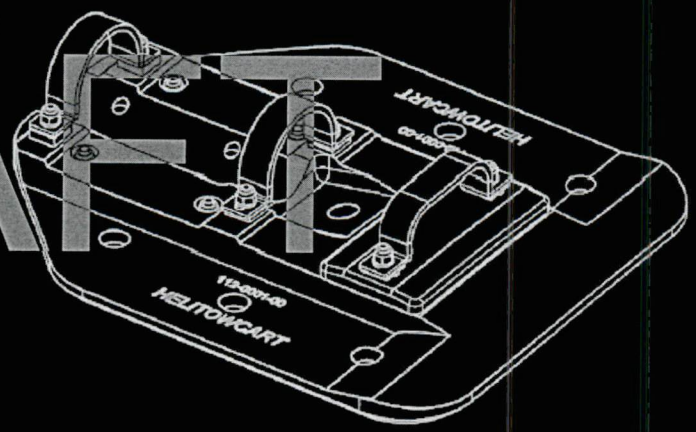
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4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	8	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	314-0016-05	BEARPAW - SHRINK (FIT-221)	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	STEEL	---	---
10	16	263-0001-17	WASHER (AN960-416)	STEEL	---	1/4
11	10	262-0001-17	NYLON NUT (AN365-428A)	STEEL	---	1/4
12	2	261-0002-17	HEX BOLT (AN4-15A)	STEEL	QQ-P-416A	1/4-28
13	2	261-0001-17	HEX BOLT (AN4-14A)	STEEL	---	---
14	2	261-0003-17	HEX BOLT (AN4-16A)	STEEL	QQ-P-416A	1/4-28



EXPLODED VIEW
SCALE 1 / 4

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ASSEMBLED
SCALE 1 / 4

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
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UNITS: INCH
SIZE: A
SCALE: N/A

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DEFINITION: BEARPAW ASSEMBLY

DRAWING NUMBER: 112-0001-00

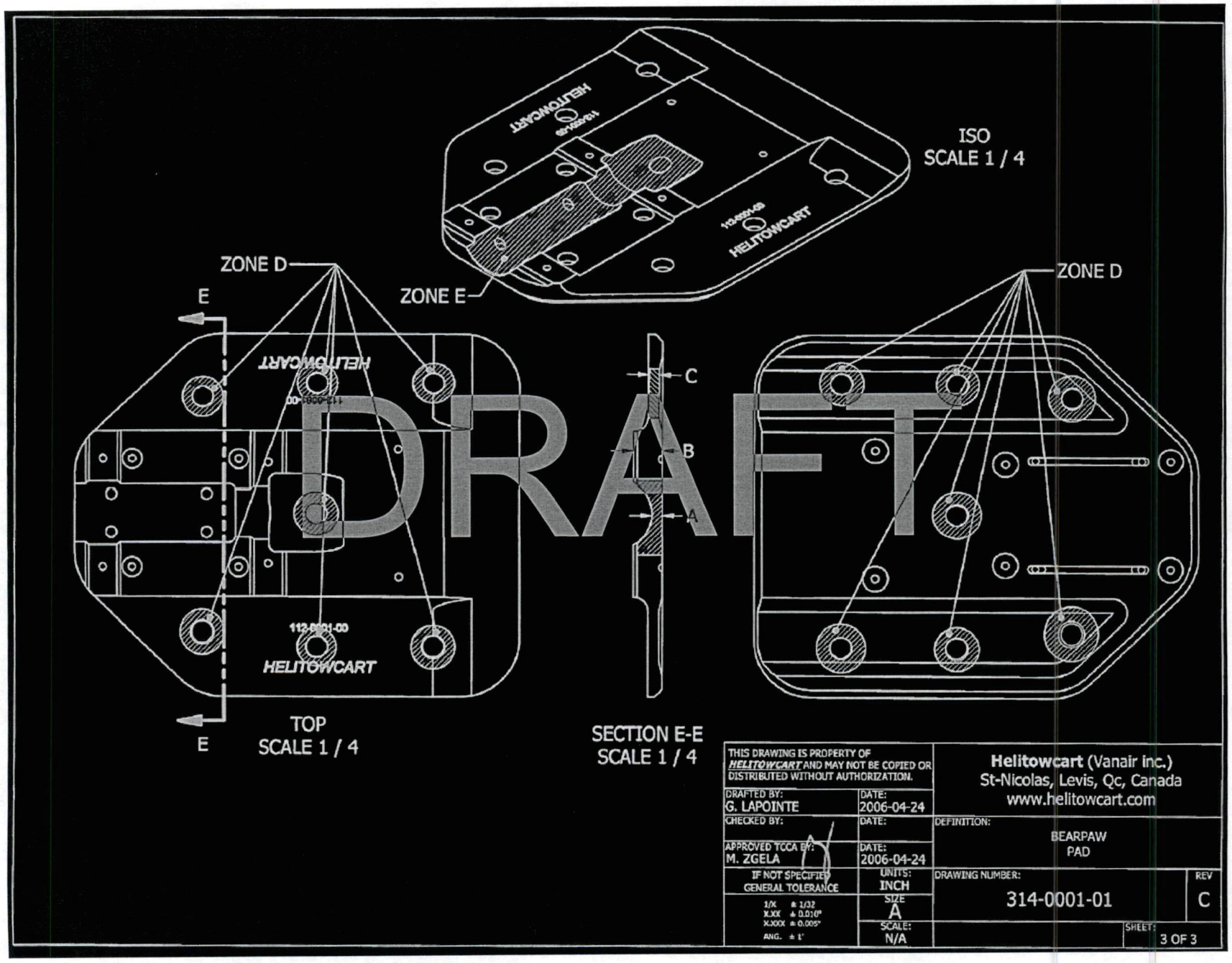
REV: F

SHEET: 1 OF 1

Annex B
BearPaw Allowable Damage Drawing, Drawing no. 314-0001-01-B, Page 3 of 3

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APPROVED TCCA BY: M. ZGELA	DATE: 2006-04-24
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DEFINITION: BEARPAW PAD

DRAWING NUMBER: 314-0001-01

REV: C

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INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw BP44 on the Robinson R44 and R66 helicopters..

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table 1:

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	877 A, Alphonse-Desrochers, St-Nicholas, Levis, Quebec, Canada, G7A 5K6	Tel:1 (418) 561-4512 Fax:1 (418) 836-4575 info@helitowcart.com

Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

Table 2 – Robinson Helicopter Effectivity

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0002, 0004 thru 9999, except 1140	Transport Canada: H-97 FAA: H11NM
R44 II	1140, 10001 and subsequent	Transport Canada: H-97 FAA: H11NM
R66	0002 and subsequent	Transport Canada: H-111 FAA: R00015LA

Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

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INSTALLATION

BearPaw Installation

Reference Documentation:

[1] Robinson R44 – Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
[2] Robinson R66 – Maintenance Manual & Instruction for Continued Airworthiness. RTR660.
[3] Annex A – BearPaw Assembly Drawings (112-0001-00)

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] or [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

Step 2: Ice Blade Installation (Optional)

- Install the two ice blades (314-0005-15) under BearPaw pad as per drawing (112-0001-00) Ref [3];
- Insert washer (263-0001-17 / AN960-416) through threaded part of ice blade and secure with nut (262-0001-17 / AN365-428A).

Step 3: BearPaw Preparation

- Insert washers (263-0001-17 / AN960-416) through all six bolts: 2x(261-0001-17 / AN4-14A) & 4x(261-0002-17 / AN4-15A);
- Insert all six bolts (261-0001-17 / AN4-14A) & (261-0002-17 / AN4-15A) and washers (263-0001-17 / AN960-416) through BearPaw pad as per drawing (112-0001-00) Ref [3];
- Insert filler blocks (314-0012-01, 1/4") & (314-0014-01, 1/16") at front of BearPaw and filler blocks (314-0015-01, 1/8") & (314-0014-01, 1/16") at center of BearPaw as per drawing (112-0001-00) Ref [3];
- Insert the rear filler block (314-0022-01) and filler blocks (314-0014-01, 1/16") at rear of BearPaw as per drawing (112-0001-00) Ref [3];

Note: Except for the rear filler block (314-0022-01) the use of filler blocks mentioned above may be increased, decreased, replaced or complemented by the use of washers (263-0001-17 / AN960-416). 261-0001-17 / AN4-14A and 261-0002-17 / AN4-15A bolts may be replaced by longer or shorter AN4 bolts as required;

Step 4: BearPaw Installation

- Position the BearPaw under skid at the aft intersection with the cross tube with narrow edge pointing forward.
- Insert both U-Shaped Clips (314-0006-15) through bolts at front and center of BearPaw as per drawing (112-0001-00) Ref [3];
- Insert the Low U-Shaped Clip (314-0023-15) through bolts at rear of BearPaw as per drawing (112-0001-00) Ref [3];
- Insert washer (263-0001-17 / AN960-416) & screw nuts (262-0001-17 / AN365-428A) for a tight fit. Maximum torque on nuts is 60 in.-lb.
- Adjust rear filler block (314-0022-01) position using slotted holes to remove all block (314-0022-01) and skid.

Step 5: Final Step

- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

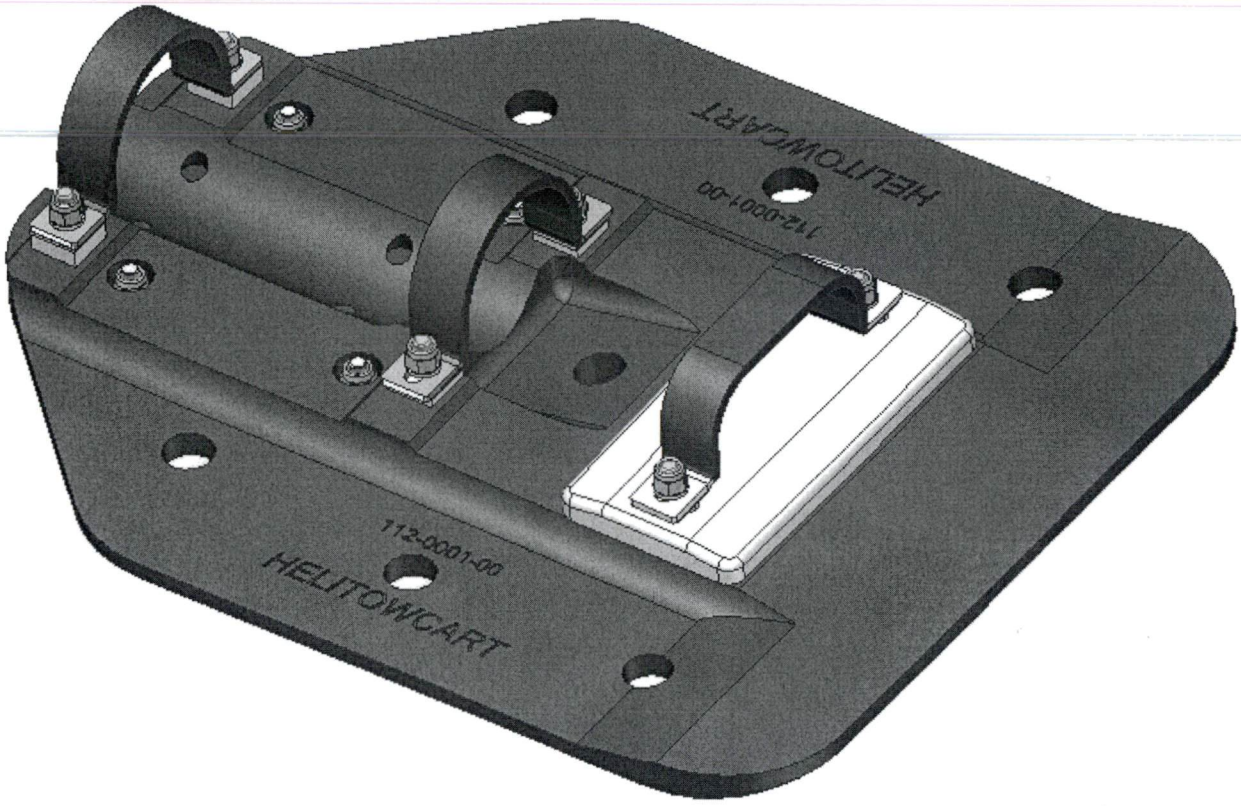


Figure 1 – BearPaw Model BP44/BP66 (112-0001-00)

BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] and [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);

Step 2: BearPaw Removal

- Remove nuts (262-0001-17 / AN365-428A), washers (263-0001-17 / AN960-416), U-Shaped Clips (314-0006-15) and Low U-Shaped Clip (314-0023-15);
- Remove BearPaw pad (314-0001-01);
- Inspect skid tubes to confirm serviceability;
- Re-install aft wearshoe with screws as per reference [1] or [2];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

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Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data – R44, R44 II and R66 helicopters

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	10.0 lbs 4.54 kg	0.0 in. (0.00 m)	0.0 lbs-in (0.0 kg-m)	128.5 in (3.26 m)	1285 lbs-in (14.8 kg-m)

Parts Lists

The Helitowcart BearPaw detailed part list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Name
BearPaw Model BP44	**1**	**112-0001-00**	**BearPaw Assembly**
BearPaw pad	1	314-0001-01	BearPaw – Pad
Filler blocks rear	1	314-0022-01	BearPaw – Filler block Rear
Filler blocks 1/4"	2	314-0012-01	BearPaw – Filler block 1/4"
U-Shaped Clips	2	314-0006-15	BearPaw – U Shaped Clips
Filler blocks 1/16"	6	314-0014-01	BearPaw – Filler block 1/16"
Filler blocks 1/8"	2	314-0015-01	BearPaw – Filler block 1/8"
Low U-Shaped Clips	1	314-0023-15	BearPaw – Low U Shaped Clips
Washers	12	263-0001-17	Washer (AN960-416)
Nuts	6	262-0001-17	Nylon Nut (AN365-428A)
Bolts	4	261-0002-17	Hex Bolt (AN4-15A).
Bolts	2	261-0001-17	Hex Bolt (AN4-14A).
IceBlade Option Model OIB	**2**	**314-0005-15**	**IceBlade Assembly**
Nuts	4	262-0001-17	Nylon Nut (AN365-428A)
Washers	4	263-0001-17	Washer (AN960-416)

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INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured;
- Check that BearPaws are free from visible damage;
- If damage is found, verify allowable damage according to:
  Table 5 – Tolerances for Cracks & Wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01 page 3 of 3).

Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 300 flying hours or yearly whichever comes first;
- The Helitowcart BearPaw can be inspected concurrently with the R44/R66 landing gear inspection;
- Recommended tolerance for performance of inspection is +/- 10% of the 300 hours period.;
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

300 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal";
- Inspect all parts for damage & wear. See table & figure below for allowable damage;
- Replace all damaged parts;
- Replace parts worn beyond the tolerances indicated below;
- See Tolerances for cracks & wear:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01 page 3 of 3).

Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,350	0,050	
D	N/A	N/A	No cracks allowed in zone D
E	N/A	N/A	No cracks allowed in zone E

Overhaul Requirements

- Not applicable for the designated application of this device.

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REVISIONS & APPROVAL

Revisions

Date	Rev	Nature of Revisions
August 09, 2013	E	Removed pocket version of the BearPaw and removed revision letters from part numbers. added applic for R66
April 15, 2010	D	Addition of a rear U shaped clip in the Streamline BearPaw Pad configuration.
October 22, 2009	C	Introduction of new streamline BearPaw Pad configuration as alternate.
September 7, 2006	B	- Added filler blocks and heat shrink to product list. - Modified recommended bolt models (lengthened) - Revised inspection requirements from 100 hour to 300 hour intervals. - Identification of the IceBlade assembly as an optional feature.
June 12, 2006	A	Initial issue

Approval

Internal Approval :		
Helitowcart inc.	Lucien Barbeau Lucien Barbeau, President	August 09, 2013
External Approval :		
Transport Canada	Mirko Zgela Mirko Zgela, DAR #310	August 09, 2013

Annex A

See: BearPaw Assembly, drawing no. 112-0001-00.

Annex B

See: BearPaw Allowable Damage Drawing, drawing no. 314-0001-01 page 3 of 3.

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Annex A
BearPaw Assembly, Drawing no. 112-0001-00

+ Anx B - wear tool

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HELI TOW CART BY VANAIR

314-0011-00 Rev E
BearPaw Model BP44
Installation Instructions - R44/R66

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Annex A (BearPaw Streamline Assembly Drawing)
Annex B (BearPaw Pad Streamline Allowable Damage Drawing)

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INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw for your Robinson R44/R66.

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table 1:

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	877 A, Alphonse-Desrochers, St-Nicholas, Levis, Quebec, Canada, G7A 5K6	Tel:1 (418) 561-4512 Fax:1 (418) 836-4575 info@helitowcart.com

Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

Table 2 – Robinson Helicopter Effectivity

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0002, 0004 thru 9999, except 1140	H-97 (FAA: H11NM)
R44 II	1140, 10001 and subsequent	H-97 (FAA: H11NM)
R66	0002 and subsequent	H-111

Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

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INSTALLATION

BearPaw Installation

Reference Documentation:

[1] Robinson R44 – Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
[2] Robinson R66 – Maintenance Manual & Instruction for Continued Airworthiness. RTR660.
[3] Annex A – BearPaw Assembly Drawings (112-0001-00)

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] or [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

Step 2: Ice Blade Installation (Optional)

- Install the two ice blades (314-0005-15) under BearPaw pad as per drawing (112-0001-00) Ref [3];
- Insert washer (AN960-416) through threaded part of ice blade and secure with nut (AN365-428A).

Step 3: BearPaw Preparation

- Insert washers (AN960-416) through all six bolts: 2x(AN4-14A) & 4x(AN4-15A);
- Insert all six bolts (AN4-14A) & (AN4-15A) and washers (AN960-416) through BearPaw pad as per drawing (112-0001-00) Ref [3];
- Insert filler blocks (314-0012-01, 1/4") & (314-0014-01, 1/16") at front of BearPaw and filler blocks (314-0015-01, 1/8") & (314-0014-01, 1/16") at center of BearPaw as per drawing (112-0001-00) Ref [3];
- Insert the rear filler block (314-0022-01) and filler blocks (314-0014-01, 1/16") at rear of BearPaw as per drawing (112-0001-00) Ref [3];

  Note: Except for the rear filler block (314-0022-01) the use of filler blocks mentioned above may be increased, decreased, replaced or complemented by the use of washers (AN960-416). AN4-14A and AN4-15A bolts may be replaced by longer or shorter AN4 bolts as required;

Step 4: BearPaw Installation

- Position the BearPaw under skid at the aft intersection with the cross tube with narrow edge pointing forward.
- Insert both U-Shaped Clips (314-0006-15) through bolts at front and center of BearPaw as per drawing (112-0001-00) Ref [3];
- Insert the Low U-Shaped Clip (314-0023-15) through bolts at rear of BearPaw as per drawing (112-0001-00) Ref [3];
- Insert washer (AN960-416) & screw nuts (AN365-428A) for a tight fit. Maximum torque on nuts is 60 in.-lb.
- Adjust rear filler block (314-0022-01) position using slotted holes to remove all gap between rear filler block (314-0022-01) and skid.

Step 5: Final Step

- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

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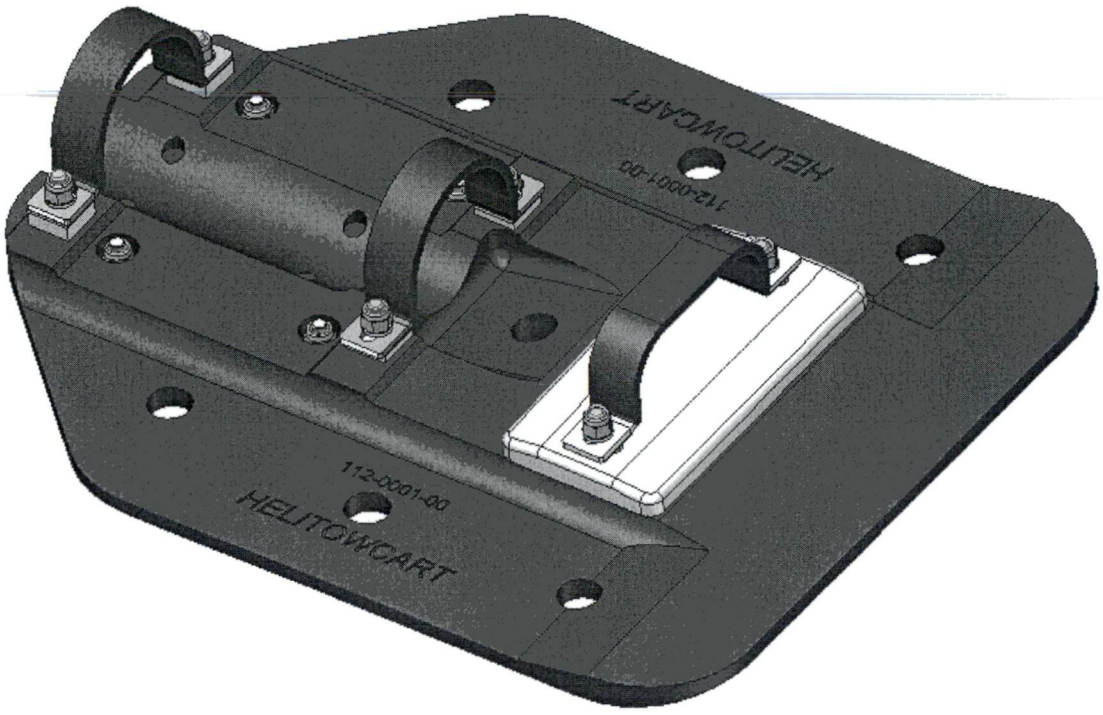


Figure 1 – BearPaw Model BP44/BP66 Streamline (112-0001-00)

BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] and [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);

Step 2: BearPaw Removal

- Remove nuts (AN365-428A), washers (AN960-416), U-Shaped Clips (314-0006-15) and Low U-Shaped Clip (314-0023-15);
- Remove BearPaw pad (314-0001-01);
- Inspect skid tubes to confirm serviceability;
- Re-install aft wearshoe with screws as per reference [1] or [2];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

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Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44 - Streamline	10.0 lbs 4.54 kg	0.0 in. (0.00 m)	0.0 lbs-in (0.0 kg-m)	128.5 in (3.26 m)	1285 lbs-in (14.8 kg-m)

R66 le même ?

Parts Lists

The Helitowcart BearPaw detailed part list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Name
BearPaw Model BP44	**1**	**112-0001-00**	**BearPaw Streamline Assembly**
BearPaw pad	1	314-0001-01	BearPaw – Pad Streamline
Filler blocks rear	1	314-0022-01	BearPaw – Filler block Rear
Filler blocks 1/4"	2	314-0012-01	BearPaw – Filler block 1/4"
U Shaped Clips	2	314-0006-15	BearPaw – U Shaped Clips
Filler blocks 1/16"	6	314-0014-01	BearPaw – Filler block 1/16"
Filler blocks 1/8"	2	314-0015-01	BearPaw – Filler block 1/8"
Low U Shaped Clip	1	314-0023-15	BearPaw – Low U Shaped Clips
Washers	12	AN960-416	Washer – 1/4" x 1/16" thk.
Nuts	6	AN365-428A	Nylon Nut – 1/4-28 UNF
Bolts	4	AN4-15A	Hex Bolt – 1/4-28 UNF x 1 21/32 LG.
Bolts	2	AN4-14A	Hex Bolt – 1/4-28 UNF x 1 17/32 LG.
IceBlade Option Model OIB	**2**	**314-0005-15**	**IceBlade Assembly**
Nuts	4	AN365-428A	Nylon Nut – 1/4-28 UNF
Washers	4	AN960-416	Washer – 1/4" x 1/16" thk.

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www.helitowcart.com info@helitowcart.com

INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured;
- Check that BearPaws are free from visible damage;
- If damage is found, verify allowable damage according to:
  Table 5 – Tolerances for Cracks & Wear;
  Annex B – BearPaw Streamline Allowable Damage Drawing (314-0001-01 page 3 of 3).

Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 300 flying hours or yearly whichever comes first;
- The Helitowcart BearPaw can be inspected concurrently with the R44/R66 landing gear inspection;
- Recommended tolerance for performance of inspection is +/- 10% of the 300 hours period.;
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

300 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal";
- Inspect all parts for damage & wear. See table & figure below for allowable damage;
- Replace all damaged parts;
- Replace parts worn beyond the tolerances indicated below;
- See Tolerances for cracks & wear:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Streamline Allowable Damage Drawing (314-0001-01 page 3 of 3).

Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,350	0,050	
D	N/A	N/A	No cracks allowed in zone D
E	0,350	0,050	
F	0,75	0,050	

Overhaul Requirements

- Not applicable for the designated application of this device.

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REVISIONS & APPROVAL

Revisions

Date	Rev	Nature of Revisions
August 09, 2013	E	Removed pocket version of the BearPaw and removed revision letters from part numbers.
April 15, 2010	D	Addition of a rear U shaped clip in the Streamline BearPaw Pad configuration.
October 22, 2009	C	Introduction of new streamline BearPaw Pad configuration as alternate.
September 7, 2006	B	- Added filler blocks and heat shrink to product list. - Modified recommended bolt models (lengthened) - Revised inspection requirements from 100 hour to 300 hour intervals. - Identification of the IceBlade assembly as an optional feature.
June 12, 2006	A	Initial issue

Approval

Internal Approval :		
Helitowcart inc.	Lucien Barbeau, President	August 09, 2013
External Approval :		
Transport Canada	Mirko Zgela, DAR #310	August 09, 2013

Annex A

See: BearPaw Streamline Assembly, drawing no. 112-0001-00.

Annex B

See: BearPaw Streamline Allowable Damage Drawing, drawing no. 314-0001-01 page 3 of 3.

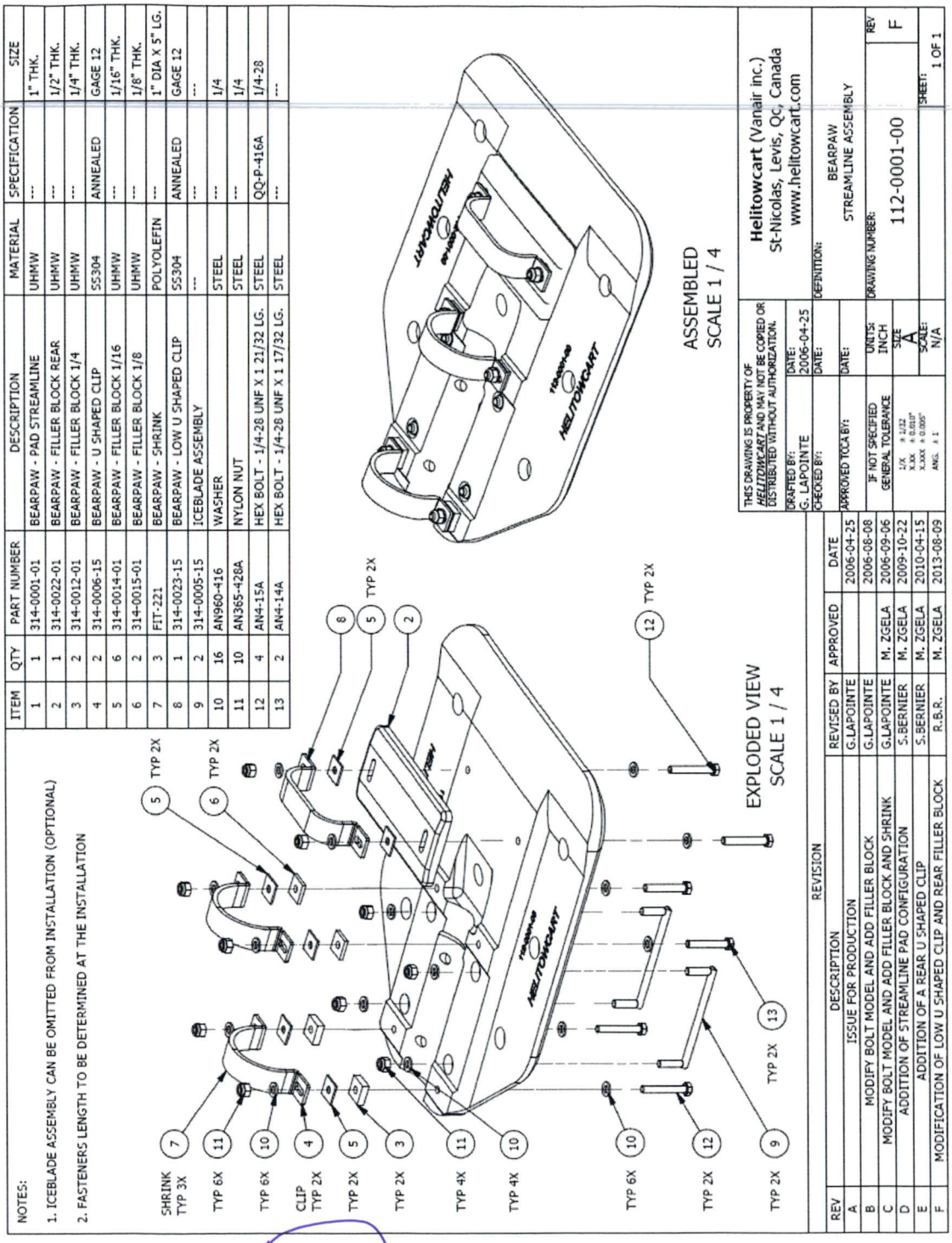
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Annex A
BearPaw Streamline Assembly, Drawing no. 112-0001-00

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NOTES:

1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)
2. FASTENERS LENGTH TO BE DETERMINED AT THE INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01	BEARPAW - PAD STREAMLINE	UHMW	---	1" THK.
2	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.
3	2	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.
4	2	314-0006-15	BEARPAW - U SHAPED CLIP	SS304	ANNEALED	GAGE 12
5	6	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.
6	2	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.
7	3	FIT-221	BEARPAW - SHRINK	POLYOLEFIN	---	1" DIA X 5" LG.
8	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12
9	2	314-0005-15	ICEBLADE ASSEMBLY	---	---	---
10	16	AN960-416	WASHER	STEEL	---	1/4
11	10	AN365-428A	NYLON NUT	STEEL	---	1/4
12	4	AN4-15A	HEX BOLT - 1/4-28 UNF X 1 21/32 LG.	STEEL	QQ-P-416A	1/4-28
13	2	AN4-14A	HEX BOLT - 1/4-28 UNF X 1 17/32 LG.	STEEL	---	---

EXPLODED VIEW
SCALE 1 / 4

ASSEMBLED
SCALE 1 / 4

REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE		2006-04-25
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK	G.LAPOINTE		2006-08-08
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK	G.LAPOINTE	M. ZGELA	2006-09-06
D	ADDITION OF STREAMLINE PAD CONFIGURATION	S.BERNIER	M. ZGELA	2009-10-22
E	ADDITION OF A REAR U SHAPED CLIP	S.BERNIER	M. ZGELA	2010-04-15
F	MODIFICATION OF LOW U SHAPED CLIP AND REAR FILLER BLOCK	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE DATE: 2006-04-25
CHECKED BY: DATE:
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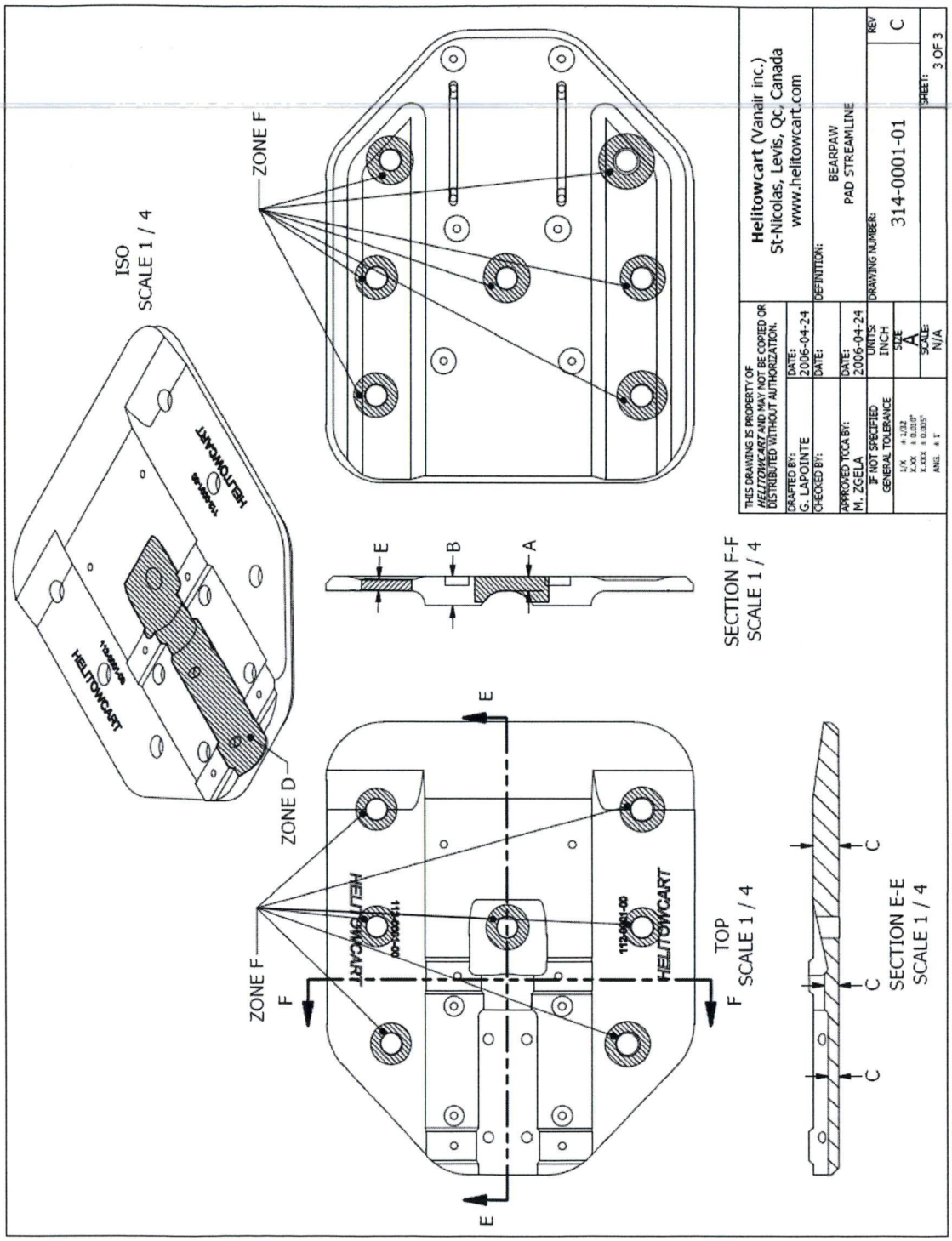
DEFINITION: BEARPAW STREAMLINE ASSEMBLY
DRAWING NUMBER: 112-0001-00
REV: F
UNITS: INCH
IF NOT SPECIFIED GENERAL TOLERANCE
SIZE: A
SCALE: N/A
SHEET: 1 OF 1

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DRAFT

Annex B
BearPaw Streamline Allowable Damage Drawing, Drawing no. 314-0001-01-B, Page 3 of 3

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DRAFT 3 E

DRAFT 1 NB
(avec partie faite par JC)

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Annex A (BearPaw Assembly Drawing)
Annex B (BearPaw Pad Allowable Damage Drawing)

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INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw for your Robinson R44 & R66.

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table (1):

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	877 A Alphonse-Derochers St-Nicolas, Levis, Qc, Canada Canada, G7A 5K6	Tel:1 (418) 561-4512 Fax:1 (418) 836-4575 info@helitowcart.com

Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

Table 2 – Robinson Helicopter Effectivity

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0271 thru 9999	H11NM
R44 II	1140, 10001 and subsequent	H11NM
R66	???	???

Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

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INSTALLATION

BearPaw Installation

Reference Documentation:

[1] Robinson R44 - Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
[2] Robinson R66 - Maintenance Manual & Instruction for [redacted]
[3] Annex A – BearPaw Assembly Drawings (112-0001-00)

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

Step 2: BearPaw Preparation

- With IceBlade Option: Install ice blades (Qty:2) under BearPaw pad as per drawing (112-0001-00) Ref [2];
- With IceBlade Option: Insert washer (Washer P/N 263-0001-17) through threaded part of the ice blade and secure with nut (P/N 262-0001-17);
- Position the BearPaw under skid at the aft intersection with the cross tube as per figure 1 with narrow edge pointing forward.

Step 3: BearPaw Set Up

- Insert washers (P/N 263-0001-17) through all six bolts: 4x(P/N261-0002-17) & 2x(261-0003-17);
- Insert bolts (P/N261-0002-17) and washer (P/N 263-0001-17) through the rear BearPaw pad as per drawing (112-0001-00-E) Ref [2]
- Insert rear filler block (P/N 314-0022-01) at the rear of BearPaw as per drawing (112-0001-00-E) Ref [2];
- Insert two washers (P/N 263-0001-17) per bolts (P/N261-0002-17) (four washers total)
- Position the BearPaw pad under the skid

- Insert Low U-shaped clip (P/N 314-0023-15) through bolts: (P/N261-0002-17) as per drawing (112-0001-00-E) Ref [2];
- Insert slotted clip supports (P/N 314-0007-15) through bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit.
- Bolts (P/N261-0002-17) may be replaced by longer or shorter AN4 bolts as required.
- Max. torque on nuts 60 in.-lb.

- Insert bolts (P/N261-0003-17) and washer (P/N 263-0001-17) through the front BearPaw pad as per drawing (112-0001-00-E) Ref [2]
- Insert small filler blocks (P/N314-0012-01) & (P/N314-0014-01) at front of BearPaw & Insert filler blocks (P/N314-0015-01) at center of BearPaw as per drawing (112-0001-00) Ref [2];
- The use of filler blocks mentioned above may be increased, decreased, replaced or complemented by the use of washers (P/N 263-0001-17).
- Bolts (P/N261-0002-17) & (261-0003-17) may be replaced by longer or shorter AN4 bolts as required.

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- Insert both U-shaped clips (P/N 314-0006-15) through bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert slotted clip supports (P/N 314-0007-15) through all four bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb.

Step 4: Final Step

- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

Figure 1 - BearPaw Model BP4466 Streamline (112-0001-00)



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(iii)

10.2 lbs

± 7 lbs

BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

Step 2: BearPaw Removal

- Remove nuts (P/N 262-0001-17), washers (P/N 263-0001-17), slotted clip support (P/N 314-0007-15) and U-shaped clips (P/N 314-0006-15);
- With the Streamline Version of the Bearpaw (P/N 112-0001-00-E) remove nuts (P/N 262-0001-17), washers (P/N 263-0001-17), slotted clip support (P/N 314-0007-15) and rear U-shaped clips (P/N 314-0023-15);
- Remove BearPaw pad (P/N 314-0001-01);
- Inspect skid tubes to confirm serviceability;
- Re-install aft wearshoe with screws as per reference [1];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	5.9 Lb 2.7 Kg	0.0in. (0.0mm)	0.0lb-kg (0.0mm-kg)	128.5 in 3.26 m	758.1 in-lb 8.8 m-kg
Helitowcart BearPaw Model BP44 Streamline	7.0 Lb 3.2 Kg	0.0in. (0.0mm)	0.0lb-kg (0.0mm-kg)	128.5 in 3.26 m	889.5 in-lb 10.4 m-kg

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Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Name (Drawing no.)
BearPaw Model BP44	**1**	**112-0001-00**	~~112-0001-00-C / BearPaw Assembly~~ **112-0001-00-E / BearPaw Streamline Assembly**
BearPaw pad	1	314-0001-01	~~314-0001-01-A / BearPaw – Pad (VNR088)~~ ~~314-0001-01-B / BearPaw – Pad Streamline~~
Low U Shaped Clips	1	314-0023-15	BearPaw - Low U Shaped Clips
U Shaped Clips	2	314-0006-15	BearPaw - U Shaped Clips (~~VNR087~~)
Slotted Clip Support	6	314-0007-15	BearPaw - Slotted Clip Support (~~VNR089~~)
Filler blocks rear	1	314-0022-01	BearPaw – Filler block Rear
Filler blocks 1/4"	2	314-0012-01	BearPaw – Filler block ¼" (~~VNR099~~)
Filler blocks ~~3/32~~"	2	314-0014-01	BearPaw – Filler block 3/32" (~~VNR103~~)
Filler blocks 1/8"	2	314-0015-01	BearPaw – Filler block 1/8" (~~VNR104~~)
Bolts	2 *(+2)	261-0002-17	Bolt- AN4-15 ~~*Note: for Streamline Assembly~~
Bolts	2	261-0003-17	Bolt- AN4-16
Nuts	4 *(+2)	262-0001-17	Nut- MS20-365-428 ~~*Note: +2 for Streamline Assembly~~
Washers	8 *(+8)	263-0001-17	Washer – AN960-416 ~~*Note: +8 for Streamline Assembly~~
Shrink	3	314-0016-00	BearPaw – Shrink Specifications & Installation
IceBlade Option Model OIB	**2**	**314-0005-15**	**VNR086 / IceBlade Assembly**
Nuts	4	262-0001-17	Nut- MS20-365-428
Washers	4	263-0001-17	Washer – AN960-416

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INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured,
- Check that BearPaws are free from visible damage,
- If damage is found, verify allowable damage according to:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01-A (VNR088) page 2 of 2) or
  Annex B – BearPaw Streamline Allowable Damage Drawing (314-0001-01-B page 3 of 3).

Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 300 flying hours or yearly whichever comes first.
- The Helitowcart BearPaw can be inspected concurrently with the R44 landing gear inspection.
- Recommended tolerance for performance of inspection is +/- 10% of the 300 hours period.
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

300 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal",
- Inspect all parts for damage & wear. See table & figure below for allowable damage,
- Replace all damaged parts,
- Replace parts worn beyond the tolerances indicated below.
- See Tolerances for cracks & wear:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01-A (VNR088) page 2 of 2); or
  Annex B – BearPaw Streamline Allowable Damage Drawing (314-0001-01-B page 3 of 3).

Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,075	Stiffeners: NO cracks in stiffeners. Pockets: Cracks are acceptable in the Helitowcart BearPaw pocket areas to a maximum length of 0,5" provided they are 0,25" away from the stiffener radius change. Stop drill cracks with a 0,125" hole.
D	0,350	0,050	

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E	N/A	N/A	No cracks allowed in zone E
F	0,350	0,050	For P/N 314-0001-01-B Only
G	0,75	0,050	For P/N 314-0001-01-B Only

Overhaul Requirements

- Not applicable for the designated application of this device.

REVISIONS & APPROVAL

Revisions

Date	Rev	Nature of Revisions
April 15, 2010	D	Addition of a rear U shaped clip in the Streamline BearPaw Pad configuration.
October 22, 2009	C	Introduction of new streamline BearPaw Pad configuration as alternate.
September 7, 2006	B	- Added filler blocks and heat shrink to product list. - Modified recommended bolt models (lengthened) - Revised inspection requirements from 100 hour to 300 hour intervals. - Identification of the IceBlade assembly as an optional feature.
June 12, 2006	A	Initial issue

E

Approval

Internal Approval :		
Helitowcart inc.	Lucien Barbeau, President	April 15, 2010
External Approval :		
Transport Canada	Mirko Zgela, DAR #310	April 15, 2010

Annex A

~~See: BearPaw Assembly, drawing no. 112-0001-00-C~~
BearPaw Streamline Assembly, drawing no. 112-0001-00-E

Annex B

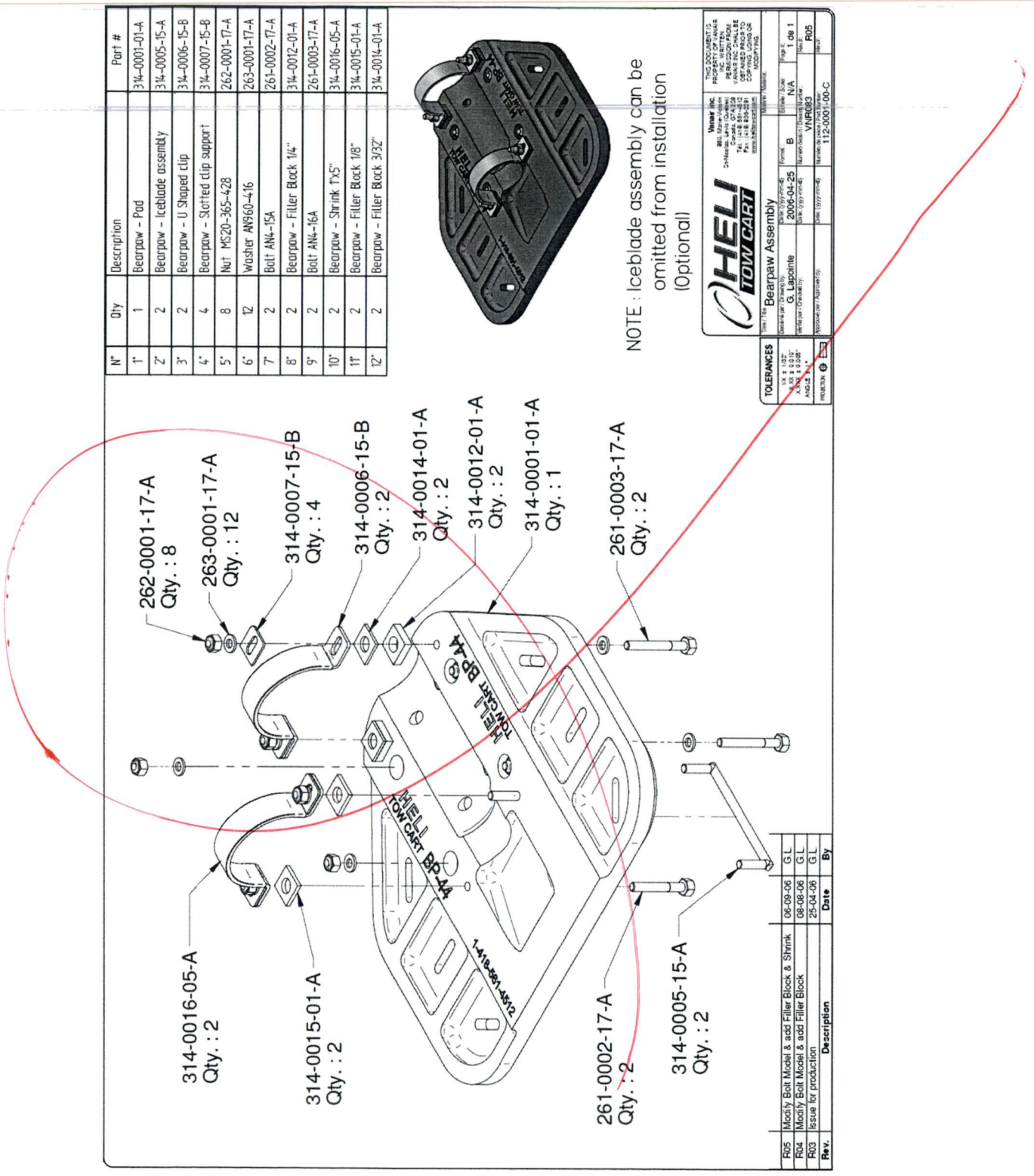
~~See: BearPaw Pad Allowable Damage Drawing, drawing no. 314-0001-01-A (VNR088) page 2 of 2.~~
BearPaw Streamline Allowable Damage Drawing, drawing no. 314-0001-01-B page 3 of 3)

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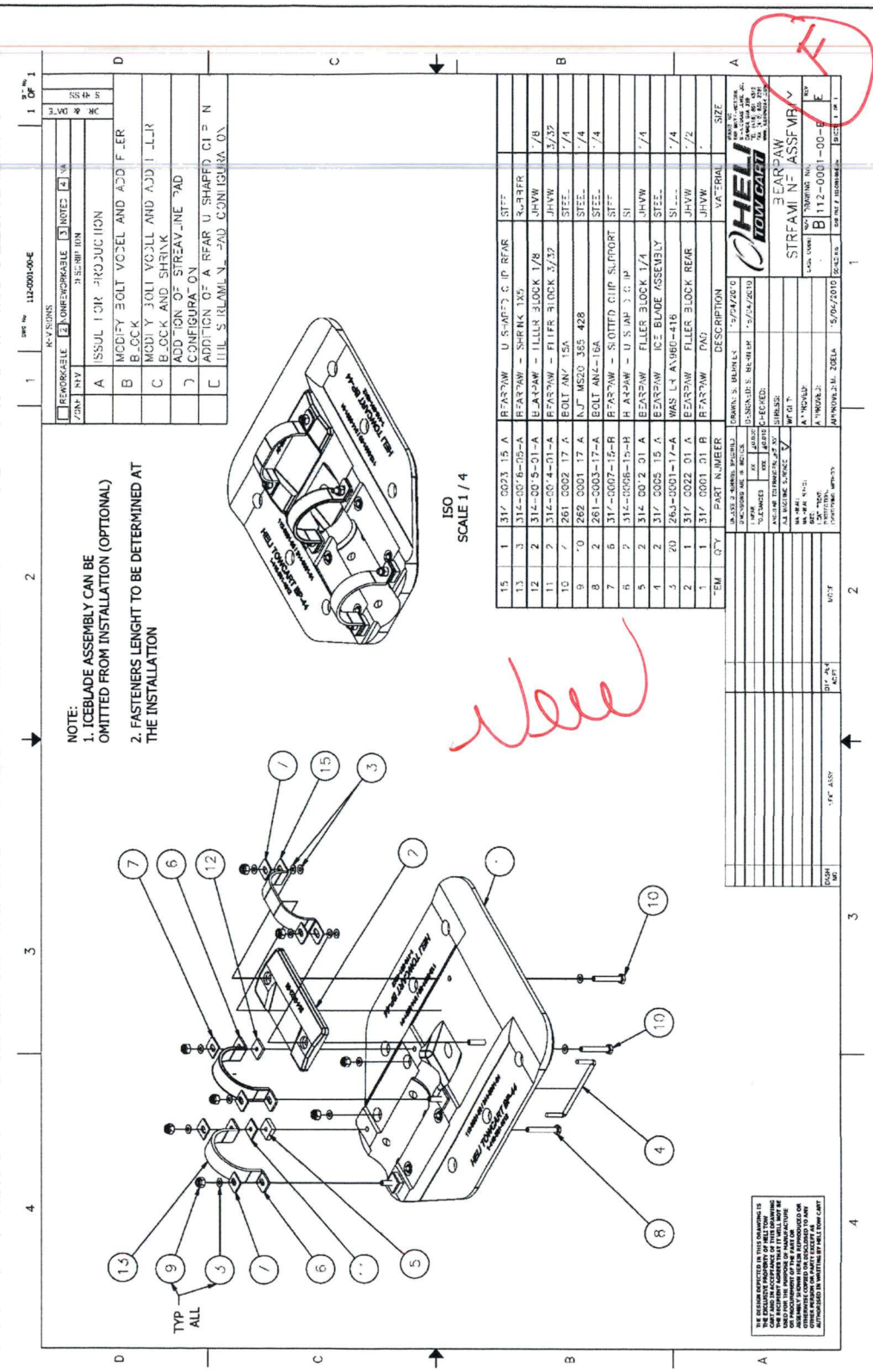
Annex A

~~BearPaw Assembly, Drawing no. 112-0001-00-C~~
BearPaw Streamline Assembly, Drawing no. 112-0001-00-E

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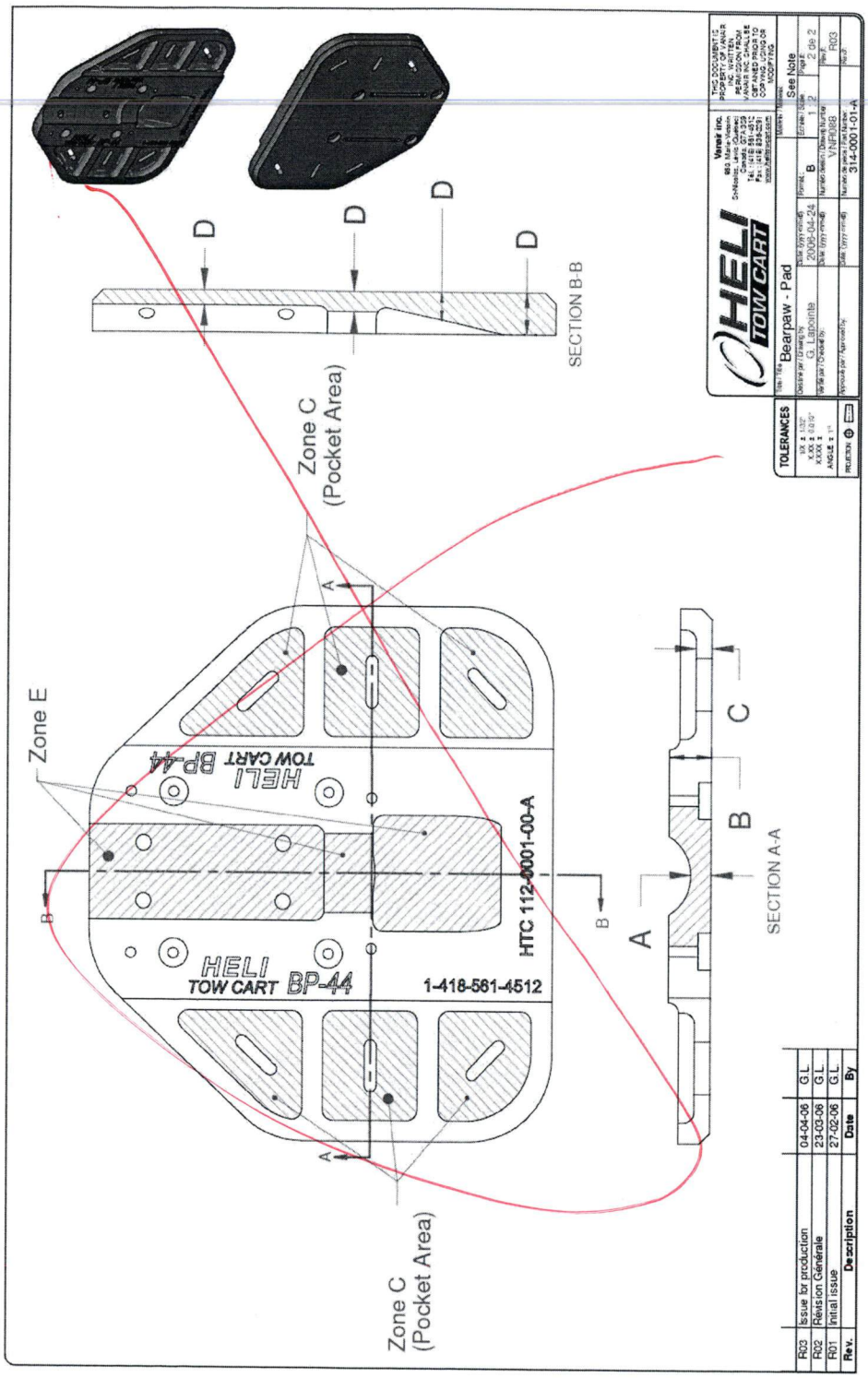


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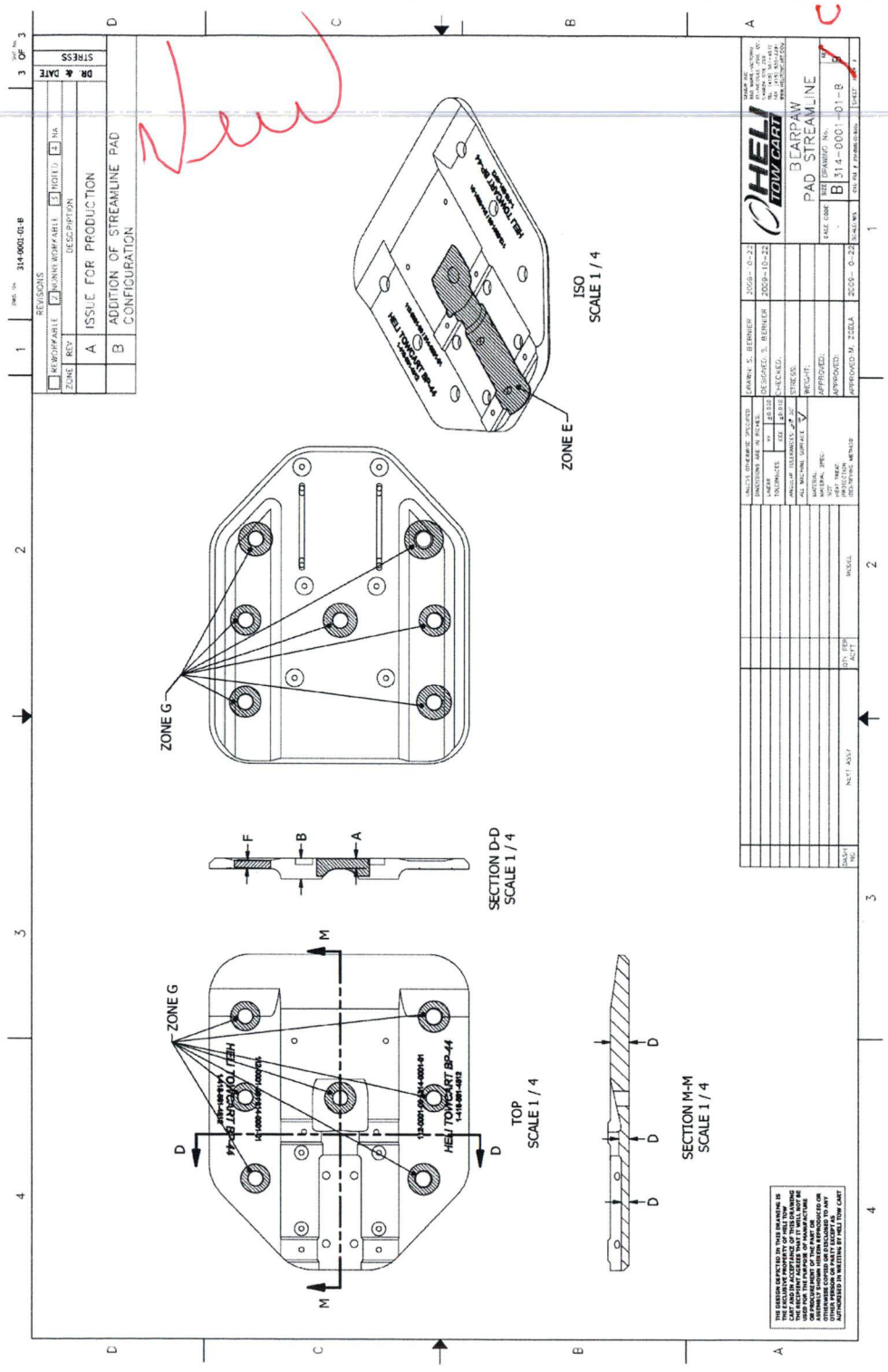
Annex B

~~BearPaw Pad Allowable Damage Drawing, Drawing no. 314-0001-01-A (VNR088), Page 2 of 2~~
BearPaw Streamline Allowable Damage Drawing, Drawing no. 314-0001-01-B, Page 3 of 3

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DRAFT 2

HELI TOW CART BY VANAIR

314-0011-00 Rev E
BearPaw Model BP44
Installation Instructions - R44/R66

DRAFT TO BE REVIEWED

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Annex A (BearPaw Streamline Assembly Drawing)
Annex B (BearPaw Pad Streamline Allowable Damage Drawing)

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INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw for your Robinson R44/R66.

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table 1:

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	877 A, Alphonse-Desrochers, St-Nicholas, Levis, Quebec, Canada, G7A 5K6	Tel:1 (418) 561-4512 Fax:1 (418) 836-4575 info@helitowcart.com

Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

Table 2 – Robinson Helicopter Effectivity

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0002, 0004 thru 9999, except 1140	H-97 (FAA: H11NM)
R44 II	1140, 10001 and subsequent	H-97 (FAA: H11NM)
R66	0002 and subsequent	H-111

Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

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INSTALLATION

BearPaw Installation

Reference Documentation:

[1] Robinson R44 – Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
[2] Robinson R66 – Maintenance Manual & Instruction for Continued Airworthiness. RTR660.
[3] Annex A – BearPaw Assembly Drawings (112-0001-00)

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] or [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

Step 2: Ice Blade Installation (Optional)

- Install the two ice blades (314-0005-15) under BearPaw pad as per drawing (112-0001-00) Ref [3];
- Insert washer (263-0001-17) through threaded part of ice blade and secure with nut (262-0001-17).

Step 3: BearPaw Preparation

- Insert washers (263-0001-17) through all six bolts: 4x(261-0002-17) & 2x(261-0003-17);
- Insert all six bolts (261-0002-17) & (261-0003-17) and washers (263-0001-17) through BearPaw pad as per drawing (112-0001-00) Ref [3];
- Insert small filler blocks (P/N314-0012-01) & (P/N314-0014-01) at front of BearPaw and insert filler blocks (P/N314-0015-01) at center of BearPaw as per drawing (112-0001-00) Ref [3];
- Insert the rear filler block (314-0022-01) at rear of BearPaw as per drawing (112-0001-00) Ref [3];
- Insert two washers (263-0001-17) per bolt (261-0002-17) at rear of BearPaw (four washers total);

  Note: Except for the rear filler block (314-0022-01) the use of filler blocks mentioned above may be increased, decreased, replaced or complemented by the use of washers (263-0001-17). Bolts (261-0002-17) & (261-0003-17) may be replaced by longer or shorter AN4 bolts as required;

Step 4: BearPaw Installation

- Position the BearPaw under skid at the aft intersection with the cross tube with narrow edge pointing forward.
- Insert both U-Shaped Clips (314-0006-15) through bolts at front and center of BearPaw as per drawing (112-0001-00) Ref [3];
- Insert Low U-Shaped Clip (314-0023-15) through bolts at rear of BearPaw as per drawing (112-0001-00) Ref [3];
- Insert slotted clip supports (P/N 314-0007-15) through all six bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Maximum torque on nuts is 60 in.-lb.
- Adjust rear filler block (314-0022-01) position using slotted holes to remove all gap between rear filler block and skid.

Step 5: Final Step

- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

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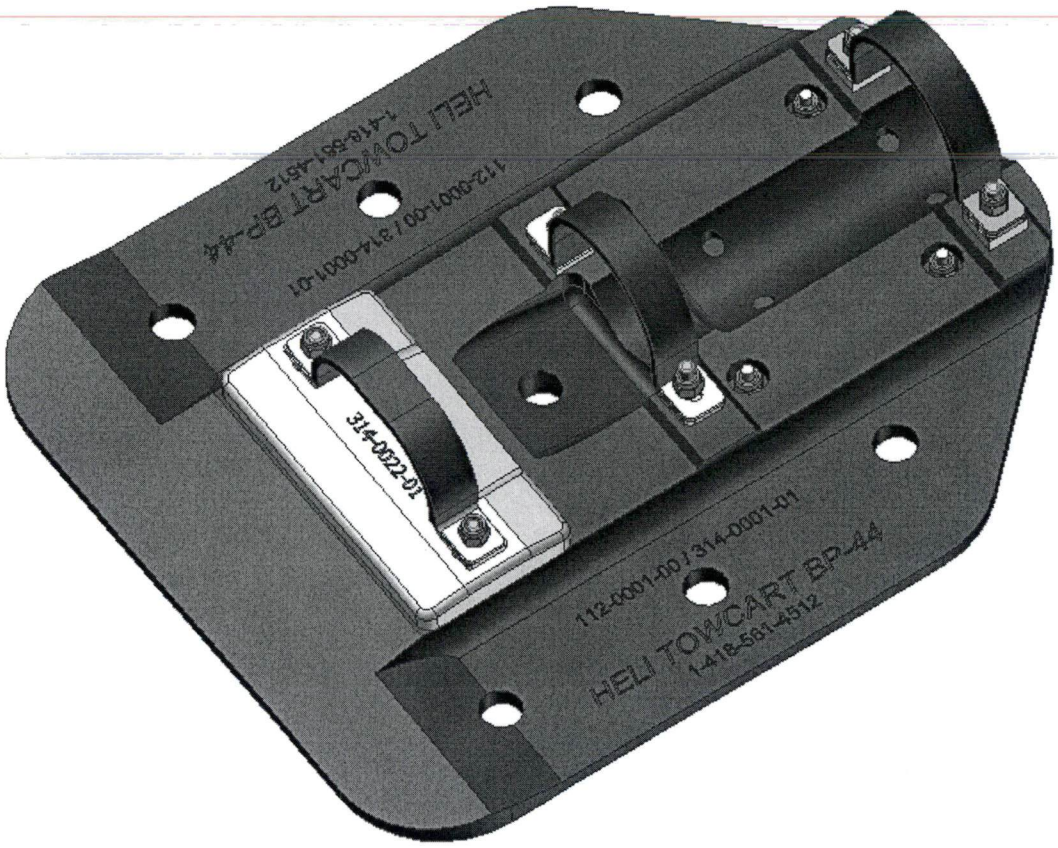


Figure 1 – BearPaw Model BP44 Streamline (112-0001-00)

BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] and [2] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½ inch (38mm);

Step 2: BearPaw Removal

- Remove nuts (262-0001-17), washers (263-0001-17), slotted clip supports (314-0007-15), U-Shaped Clips (314-0006-15) and Low U-Shaped Clip (314-0023-15);
- Remove BearPaw pad (314-0001-01);
- Inspect skid tubes to confirm serviceability;
- Re-install aft wearshoe with screws as per reference [1] or [2];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

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Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44 - Streamline	10.0 lbs 4.54 kg	0.0 in. (0.00 m)	0.0 lbs-in (0.0 kg-m)	128.5 in (3.26 m)	1285 lbs-in (14.8 kg-m)

Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Name
BearPaw Model BP44	**1**	**112-0001-00**	**BearPaw Streamline Assembly**
BearPaw pad	1	314-0001-01	BearPaw – Pad Streamline
Low U Shaped Clips	1	314-0023-15	BearPaw – Low U Shaped Clips
U Shaped Clips	2	314-0006-15	BearPaw – U Shaped Clips
Slotted Clip Support	6	314-0007-15	BearPaw – Slotted Clip Support
Filler blocks rear	1	314-0022-01	BearPaw – Filler block Rear
Filler blocks 1/4"	2	314-0012-01	BearPaw – Filler block 1/4"
Filler blocks 3/32"	2	314-0014-01	BearPaw – Filler block 3/32"
Filler blocks 1/8"	2	314-0015-01	BearPaw – Filler block 1/8"
Bolts	4	261-0002-17	Bolt – AN4-15
Bolts	2	261-0003-17	Bolt – AN4-16
Nuts	6	262-0001-17	Nut – MS20-365-428
Washers	16	263-0001-17	Washer – AN960-416
Shrink	3	314-0016-00	BearPaw – Shrink Specifications & Installation
IceBlade Option Model OIB	**2**	**314-0005-15**	**IceBlade Assembly**
Nuts	4	262-0001-17	Nut – MS20-365-428
Washers	4	263-0001-17	Washer – AN960-416

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INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured;
- Check that BearPaws are free from visible damage;
- If damage is found, verify allowable damage according to:
  Table 5 – Tolerances for Cracks & Wear;
  Annex B – BearPaw Streamline Allowable Damage Drawing (314-0001-01 page 3 of 3).

Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 300 flying hours or yearly whichever comes first;
- The Helitowcart BearPaw can be inspected concurrently with the R44/R66 landing gear inspection;
- Recommended tolerance for performance of inspection is +/- 10% of the 300 hours period.;
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

300 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal";
- Inspect all parts for damage & wear. See table & figure below for allowable damage;
- Replace all damaged parts;
- Replace parts worn beyond the tolerances indicated below;
- See Tolerances for cracks & wear:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Streamline Allowable Damage Drawing (314-0001-01 page 3 of 3).

Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
D	0,350	0,050	
E	N/A	N/A	No cracks allowed in zone E
F	0,350	0,050	
G	0,75	0,050	

Overhaul Requirements

- Not applicable for the designated application of this device.

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REVISIONS & APPROVAL

Revisions

Date	Rev	Nature of Revisions
July 11, 2013	E	Removed pocket version of the BearPaw and removed revision letters from part numbers.
April 15, 2010	D	Addition of a rear U shaped clip in the Streamline BearPaw Pad configuration.
October 22, 2009	C	Introduction of new streamline BearPaw Pad configuration as alternate.
September 7, 2006	B	- Added filler blocks and heat shrink to product list. - Modified recommended bolt models (lengthened) - Revised inspection requirements from 100 hour to 300 hour intervals. - Identification of the IceBlade assembly as an optional feature.
June 12, 2006	A	Initial issue

Approval

Internal Approval :		
Helitowcart inc.	Lucien Barbeau Lucien Barbeau, President	July 11, 2013
External Approval :		
Transport Canada	Mirko Zgela Mirko Zgela, DAR #310	July 11, 2013

Annex A

See: BearPaw Streamline Assembly, drawing no. 112-0001-00.

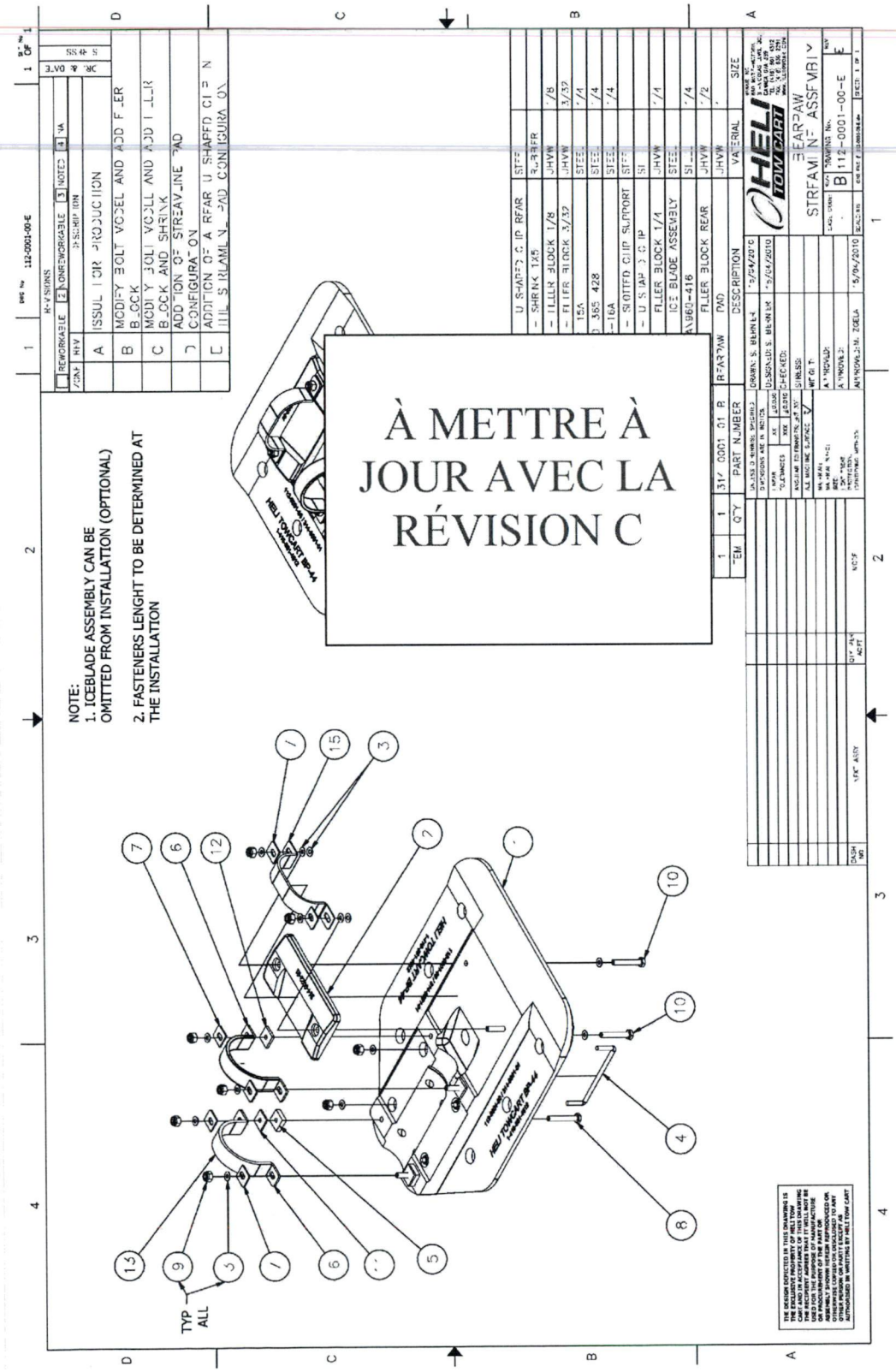
Annex B

See: BearPaw Streamline Allowable Damage Drawing, drawing no. 314-0001-01 page 3 of 3.

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Annex A
BearPaw Streamline Assembly, Drawing no. 112-0001-00

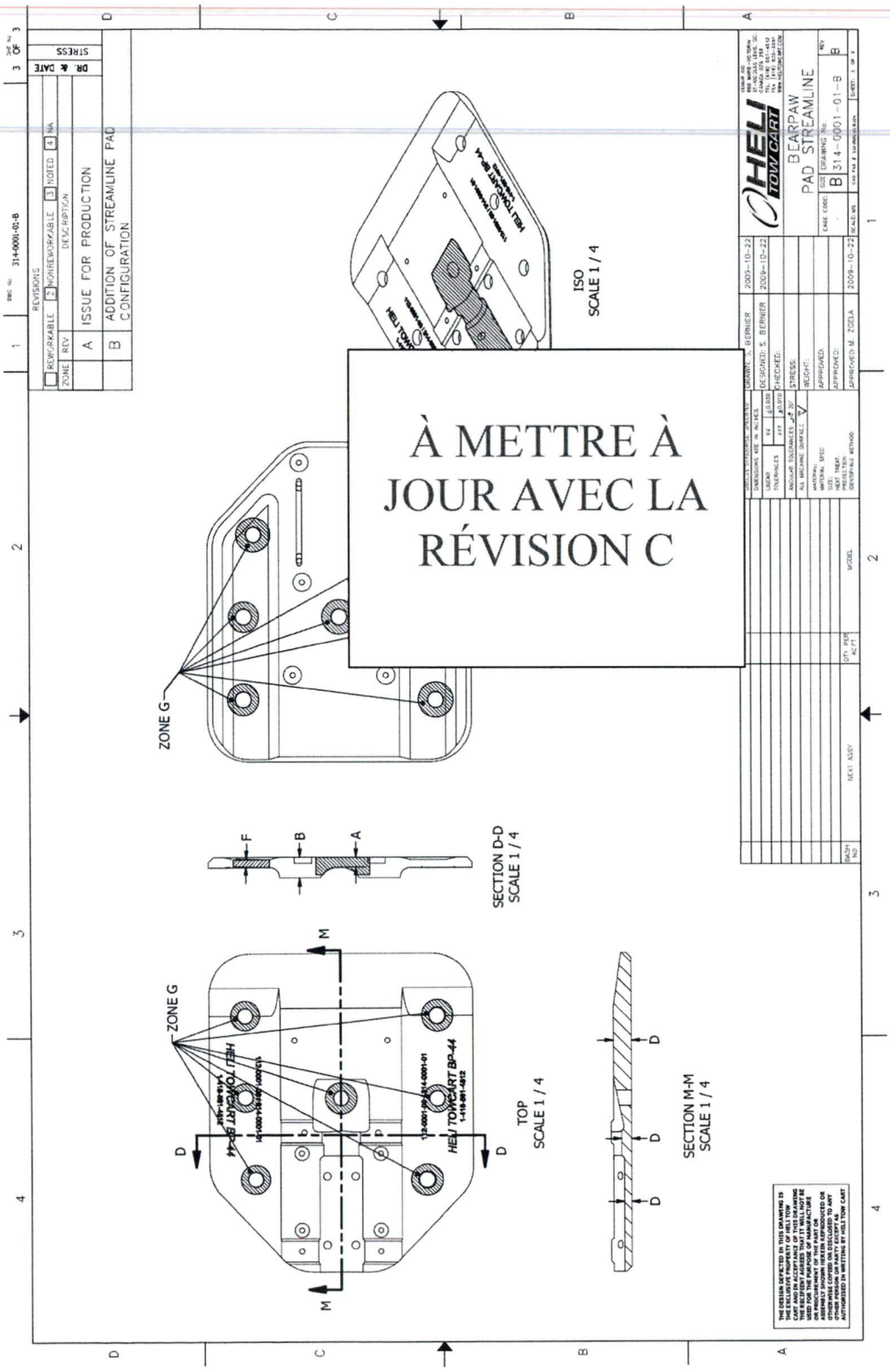
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Annex B
BearPaw Streamline Allowable Damage Drawing, Drawing no. 314-0001-01-B, Page 3 of 3

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Annex A (BearPaw Assembly Drawing)
Annex B (BearPaw Pad Allowable Damage Drawing)

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INTRODUCTION

Scope

This installation instruction describes the step-by-step approach to install and to perform maintenance of the Helitowcart BearPaw for your Robinson R44.

General

The Helitowcart BearPaw is made of machined UHMW TIVAR® polymer sheet. This material combines high-impact performance, low friction and good resistance to chemical. Its high durability will provide superior performance to your Robinson helicopter. Any question regarding the Helitowcart BearPaw system shall be directed to Helitowcart Customer Support as indicated in Table (1):

Table 1 – Helitowcart Customer Support

Care of	Mailing Address	Phone, Fax & Email:
Customer Support Helitowcart BearPaw Helitowcart (Vanair inc)	860 Marie-Victorin St-Nicholas, Levis, Quebec, Canada, G7A 3S9	Tel:1 (418) 561-4512 Fax:1 (418) 836-2291 info@helitowcart.com

Helicopter Effectivity

This installation instruction applies to the following ROBINSON Helicopters:

Table 2 – Robinson Helicopter Effectivity

A/C Model	Serial no.	Type Certificate Data Sheet
R44	0271 thru 9999	H11NM
R44 II	1140, 10001 and subsequent	H11NM

Installer Responsibilities

The installer shall ensure that the installation of the Helitowcart BearPaw does not conflict with any other part of the helicopter configuration. Technicians performing this installation should be familiar with A/C work and should have been familiarized with the different Helitowcart BearPaw system components prior to performing a first time installation. All steps in this procedure must be followed. Deviations from the procedures may result in potential structural failure or equipment malfunction and will result in a non-compliant installation.

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INSTALLATION

BearPaw Installation

Reference Documentation:
[1] Robinson R44 - Maintenance Manual & Instruction for Continued Airworthiness. RTR460.
[2] Annex A – BearPaw Assembly Drawings (112-0001-00-C & 112-0001-00-E)

Step 1: Helicopter Preparation
- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);
- Remove aft skid wearshoe & re-install the attaching screws.

Step 2: BearPaw Preparation
- With IceBlade Option: Install ice blades (Qty:2) under BearPaw pad as per drawing (112-0001-00) Ref [2];
- With IceBlade Option: Insert washer (Washer P/N 263-0001-17) through threaded part of the ice blade and secure with nut (P/N 262-0001-17);
- Position the BearPaw under skid at the aft intersection with the cross tube as per figure 1 with narrow edge pointing forward.

Step 3: BearPaw Set Up
- Insert washers (P/N 263-0001-17) through all four front bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert bolts(P/N261-0002-17) & (261-0003-17) and washer (P/N 263-0001-17) through BearPaw pad as per drawing (112-0001-00) Ref [2]
- If Streamline model, then apply step 3.1. See step 3.1described below.
- Position the BearPaw pad under the skid
- Insert small filler blocks (P/N314-0012-01) & (P/N314-0014-01) at front of BearPaw& Insert filler blocks (P/N314-0015-01) at center of BearPaw as per drawing (112-0001-00) Ref [2];
- The use of filler blocks mentioned above may be increased, decreased, replaced or complemented by the use of washers (P/N 263-0001-17). Bolts (P/N261-0002-17) & (261-0003-17) may be replaced by longer or shorter AN4 bolts as required.
- Insert both U-shaped clips (P/N 314-0006-15) through bolts: 2x(P/N261-0002-17) & 2x(261-0003-17);
- Insert slotted clip supports (P/N 314-0007-15) through all four bolts. Position slotted clip supports with rounded edge toward helicopter skid;
- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Max. torque on nuts 60 in.-lb.

Step 3.1: With the Streamline Version of the Bearpaw (P/N 112-0001-00-E)
- Insert washers (P/N 263-0001-17) through bolts (P/N261-0002-17)
- Insert bolts (P/N261-0002-17) and washer (P/N 263-0001-17) through the rear BearPaw pad as per drawing (112-0001-00-E) Ref [2]
- Insert rear filler block (P/N 314-0022-01) at the rear of BearPaw as per drawing (112-0001-00-E) Ref [2];
- Insert two washers (P/N 263-0001-17) per bolts (P/N261-0002-17) (four washers total)
- Insert Low U-shaped clip (P/N 314-0023-15) through bolts: (P/N261-0002-17) as per drawing (112-0001-00-E) Ref [2];
- Insert slotted clip supports (P/N 314-0007-15) through bolts. Position slotted clip supports with rounded edge toward helicopter skid;

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- Insert washer (P/N 263-0001-17) & screw nuts (P/N 262-0001-17) for a tight fit. Bolts (P/N261-0002-17) may be replaced by longer or shorter AN4 bolts as required. Max. torque on nuts 60 in.-lb.

Step 4: Final Step

- Remove helicopter from lift;
- Amend Weight & Balance records as required using data provided in Table 3.

Figure 1 - Installed BearPaw Model BP44 (112-0001-00-C)

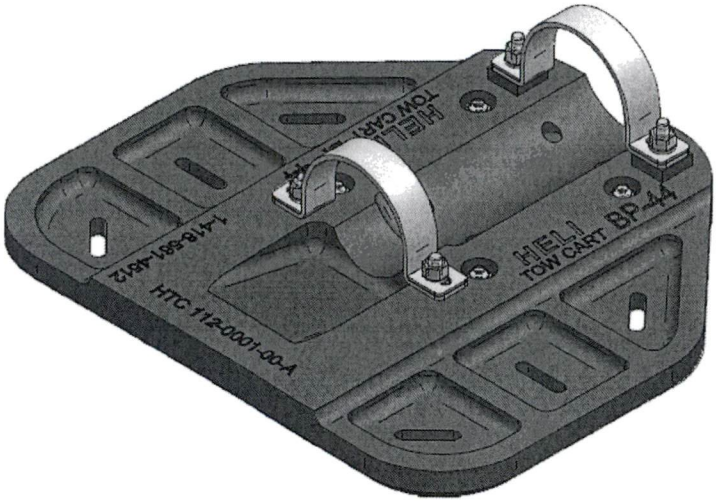
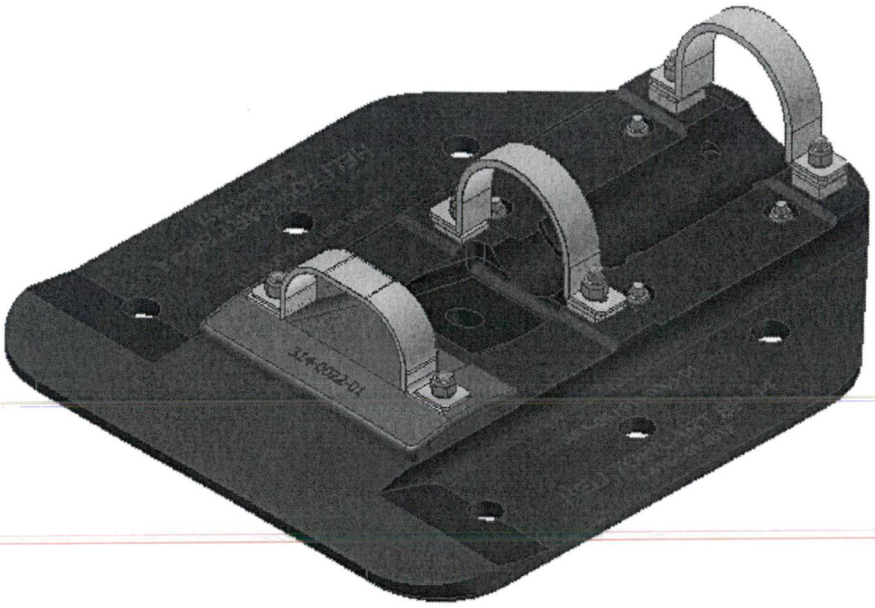


Figure 2 - BearPaw Model BP44 Streamline (112-0001-00-E)



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BearPaw Removal

Step 1: Helicopter Preparation

- Ensure the helicopter is safe for maintenance;
- Lift the helicopter using the manufacturer recommended practice provided in Ref [1] to allow a clearance of the skid in the area of the aft cross tube of approximately 1 ½" (38mm);

Step 2: BearPaw Removal

- Remove nuts (P/N 262-0001-17), washers (P/N 263-0001-17), slotted clip support (P/N 314-0007-15) and U-shaped clips (P/N 314-0006-15);
- With the Streamline Version of the Bearpaw (P/N 112-0001-00-E) remove nuts (P/N 262-0001-17), washers (P/N 263-0001-17), slotted clip support (P/N 314-0007-15) and rear U-shaped clips (P/N 314-0023-15);
- Remove BearPaw pad (P/N 314-0001-01);
- Inspect skid tubes to confirm serviceability;
- Re-install aft wearshoe with screws as per reference [1];
- Complete installation by putting helicopter back to normal position by removing lift status;
- Amend Weight & Balance records as required.

Weight & Balance

The following information should be used to amend the helicopter weight and balance information following the installation or removal:

Table 3 – Weight & Balance Data

Item	Weight	Lateral		Longitudinal	
		Arm	Moment	Arm	Moment
Helitowcart BearPaw Model BP44	5.9 Lb 2.7 Kg	0.0in. (0.0mm)	0.0lb-kg (0.0mm-kg)	128.5 in 3.26 m	758.1 in-lb 8.8 m-kg
Helitowcart BearPaw Model BP44 - Streamline	7.0 Lb 3.2 Kg	0.0in. (0.0mm)	0.0lb-kg (0.0mm-kg)	128.5 in 3.26 m	889.5 in-lb 10.4 m-kg

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Parts Lists

The Helitowcart BearPaw detailed parts list is as follow:

Table 4 – Parts List

Description	Qty	Part No.	Name (Drawing no.)
BearPaw Model BP44	**1**	**112-0001-00**	**112-0001-00-C / BearPaw Assembly** **112-0001-00-E / BearPaw Streamline Assembly**
BearPaw pad	1	314-0001-01	314-0001-01-A / BearPaw – Pad (VNR088) 314-0001-01-B / BearPaw – Pad Streamline
Low U Shaped Clips	1	314-0023-15	BearPaw - Low U Shaped Clips
U Shaped Clips	2	314-0006-15	BearPaw - U Shaped Clips (VNR087)
Slotted Clip Support	6	314-0007-15	BearPaw - Slotted Clip Support (VNR089)
Filler blocks rear	1	314-0022-01	BearPaw – Filler block Rear
Filler blocks 1/4"	2	314-0012-01	BearPaw – Filler block ¼" (VNR099)
Filler blocks 3/32"	2	314-0014-01	BearPaw – Filler block 3/32" (VNR103)
Filler blocks 1/8"	2	314-0015-01	BearPaw – Filler block 1/8" (VNR104)
Bolts	2 *(+2)	261-0002-17	Bolt- AN4-15 *Note: for Streamline Assembly
Bolts	2	261-0003-17	Bolt- AN4-16
Nuts	4 *(+2)	262-0001-17	Nut- MS20-365-428 *Note: +2 for Streamline Assembly
Washers	8 *(+8)	263-0001-17	Washer – AN960-416 *Note: +8 for Streamline Assembly
Shrink	3	314-0016-00	BearPaw – Shrink Specifications & Installation
IceBlade Option Model OIB	**2**	**314-0005-15**	**VNR086 / IceBlade Assembly**
Nuts	4	262-0001-17	Nut- MS20-365-428
Washers	4	263-0001-17	Washer – AN960-416

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INSPECTION

Life Limited Items

There are no life limited items for the Helitowcart BearPaw.

Pre-Flight

Before each flight the following items should be inspected:

- Check that attachment bolts are installed and secured,
- Check that BearPaws are free from visible damage,
- If damage is found, verify allowable damage according to:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01-A (VNR088) page 2 of 2) or
  Annex B – BearPaw Streamline Allowable Damage Drawing (314-0001-01-B page 3 of 3).

Periodic Inspection Schedule

- The Helitowcart BearPaw shall be inspected every 300 flying hours or yearly whichever comes first.
- The Helitowcart BearPaw can be inspected concurrently with the R44 landing gear inspection.
- Recommended tolerance for performance of inspection is +/- 10% of the 300 hours period.
- Following an inspection, subsequent interval shall be adjusted to meet the original schedule from time of inspection. If inspection is performed earlier than the 10% tolerance, then following inspections shall be scheduled not to exceed the above mentioned tolerance.

300 Hour or Yearly Inspection Details

- Remove Helitowcart BearPaw: See Section "BearPaw Removal",
- Inspect all parts for damage & wear. See table & figure below for allowable damage,
- Replace all damaged parts,
- Replace parts worn beyond the tolerances indicated below.
- See Tolerances for cracks & wear:
  Table 5 – Tolerances for cracks & wear;
  Annex B – BearPaw Allowable Damage Drawing (314-0001-01-A (VNR088) page 2 of 2); or
  Annex B – BearPaw Streamline Allowable Damage Drawing (314-0001-01-B page 3 of 3).

Table 5 – Tolerances for Cracks & Wear

Zone	Nominal Dimension (Inches)	Allowable Damage/Wear (Inches)	Cracks
A	0,350	0,050	
B	1,000	0,250	
C	0,375	0,075	Stiffeners: NO cracks in stiffeners. Pockets: Cracks are acceptable in the Helitowcart BearPaw pocket areas to a maximum length of 0,5" provided they are 0,25" away from the stiffener radius change. Stop drill cracks with a 0,125" hole.
D	0,350	0,050	

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E	N/A	N/A	No cracks allowed in zone E
F	0,350	0,050	For P/N 314-0001-01-B Only
G	0,75	0,050	For P/N 314-0001-01-B Only

Overhaul Requirements

- Not applicable for the designated application of this device.

REVISIONS & APPROVAL

Revisions

Date	Rev	Nature of Revisions
April 15, 2010	D	Addition of a rear U shaped clip in the Streamline BearPaw Pad configuration.
October 22, 2009	C	Introduction of new streamline BearPaw Pad configuration as alternate.
September 7, 2006	B	- Added filler blocks and heat shrink to product list. - Modified recommended bolt models (lengthened) - Revised inspection requirements from 100 hour to 300 hour intervals. - Identification of the IceBlade assembly as an optional feature.
June 12, 2006	A	Initial issue

Approval

Internal Approval :		
Helitowcart inc.	Lucien Barbeau Lucien Barbeau, President	April 15, 2010
External Approval :		
Transport Canada	Mirko Zgela Mirko Zgela, DAR #310	April 15, 2010

Annex A

See: BearPaw Assembly, drawing no. 112-0001-00-C
BearPaw Streamline Assembly, drawing no. 112-0001-00-E

Annex B

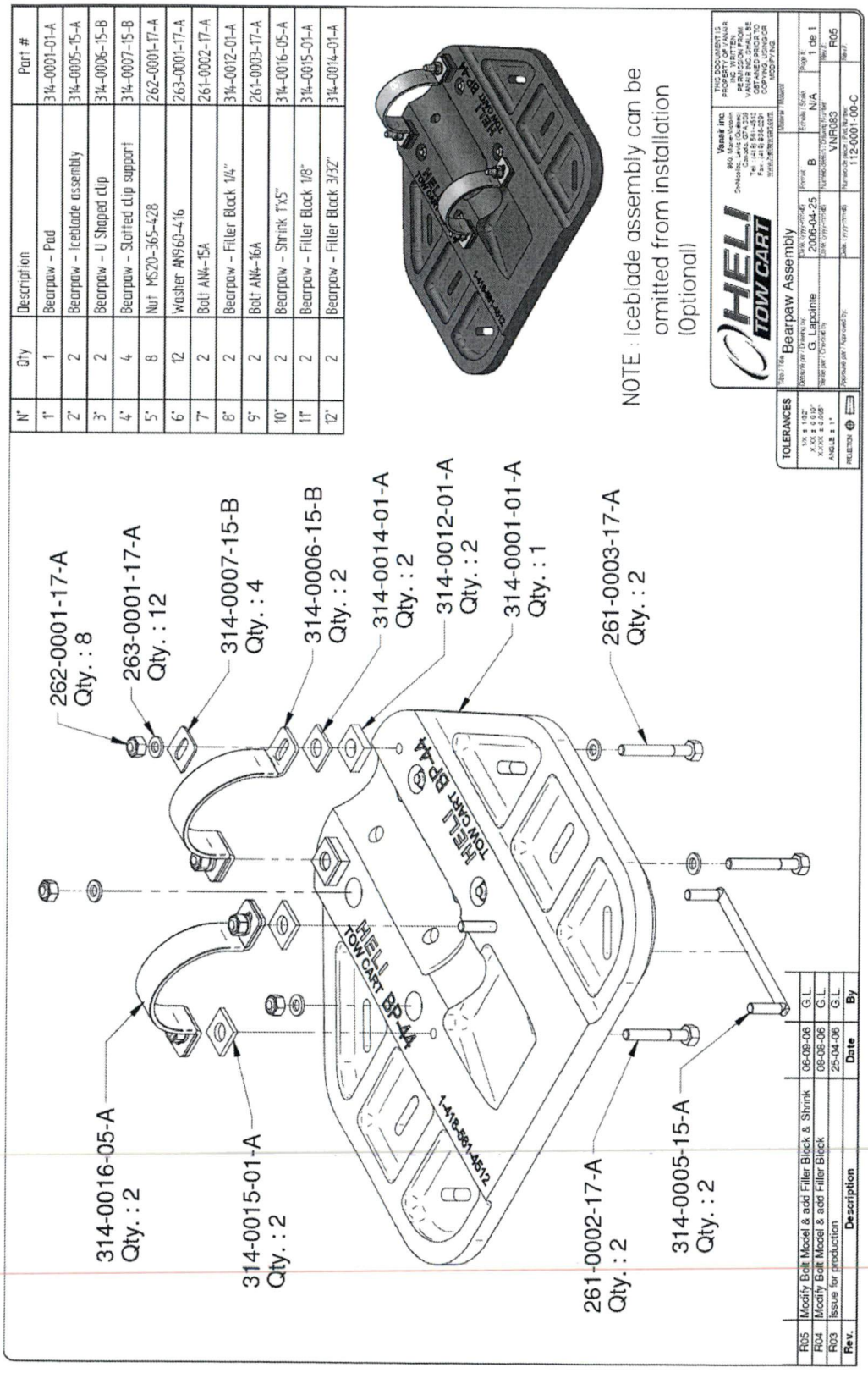
See: BearPaw Pad Allowable Damage Drawing, drawing no. 314-0001-01-A (VNR088) page 2 of 2.
BearPaw Streamline Allowable Damage Drawing, drawing no. 314-0001-01-B page 3 of 3)

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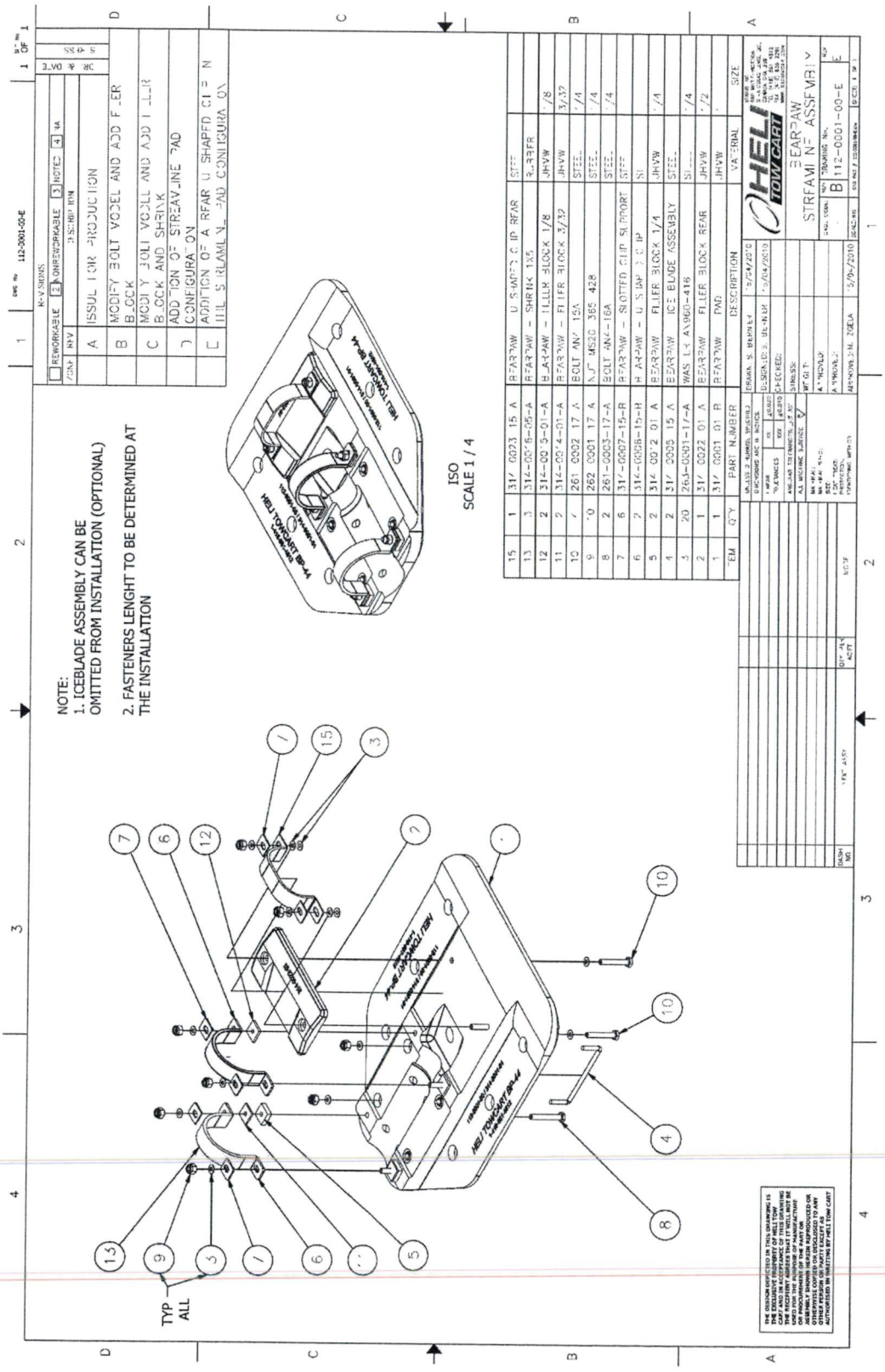
Annex A

BearPaw Assembly, Drawing no. 112-0001-00-C
BearPaw Streamline Assembly, Drawing no. 112-0001-00-E

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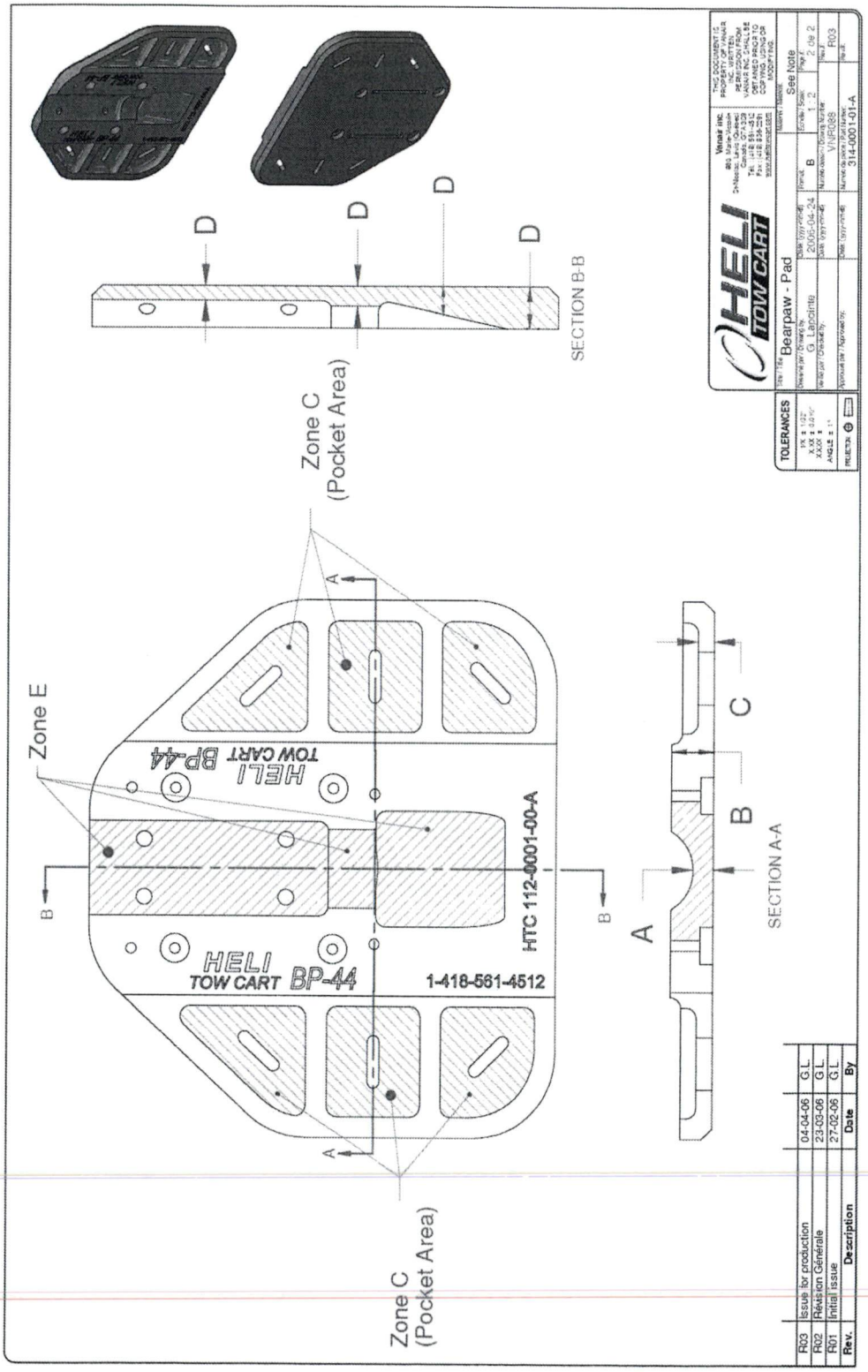


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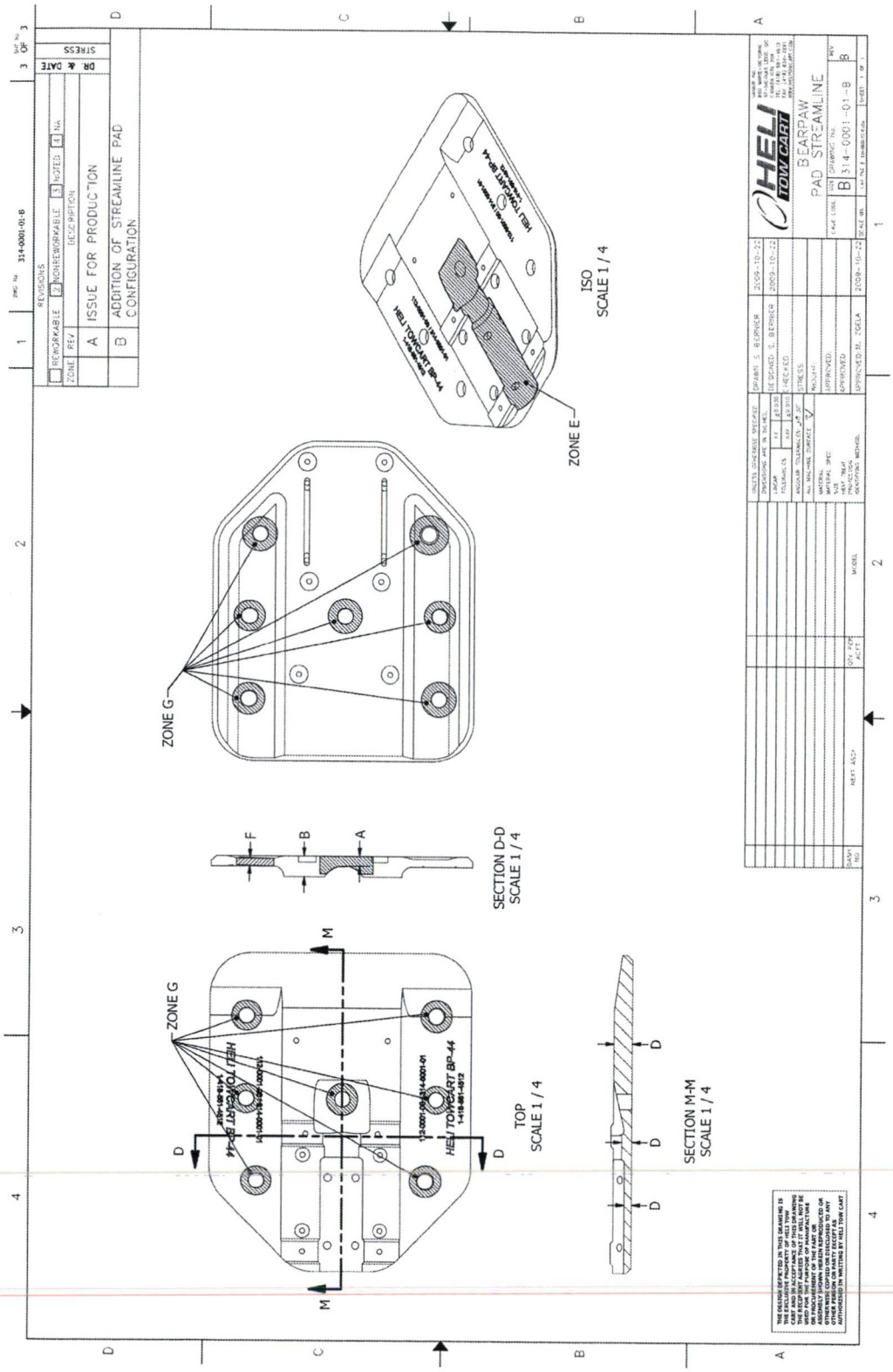
Annex B

BearPaw Pad Allowable Damage Drawing, Drawing no. 314-0001-01-A (VNR088), Page 2 of 2
BearPaw Streamline Allowable Damage Drawing, Drawing no. 314-0001-01-B, Page 3 of 3

Tel: 1-418-561-4512, Fax: 1-418-836-2291, 860 Marie-Victorin, Saint-Nicolas, Levis, Quebec, Canada G7A 3S9.
www.helitowcart.com info@helitowcart.com



Tel: 1-418-561-4512, Fax: 1-418-836-2291, 860 Marie-Victorin, Saint-Nicolas, Levis, Quebec, Canada G7A 3S9.
www.helitowcart.com info@helitowcart.com

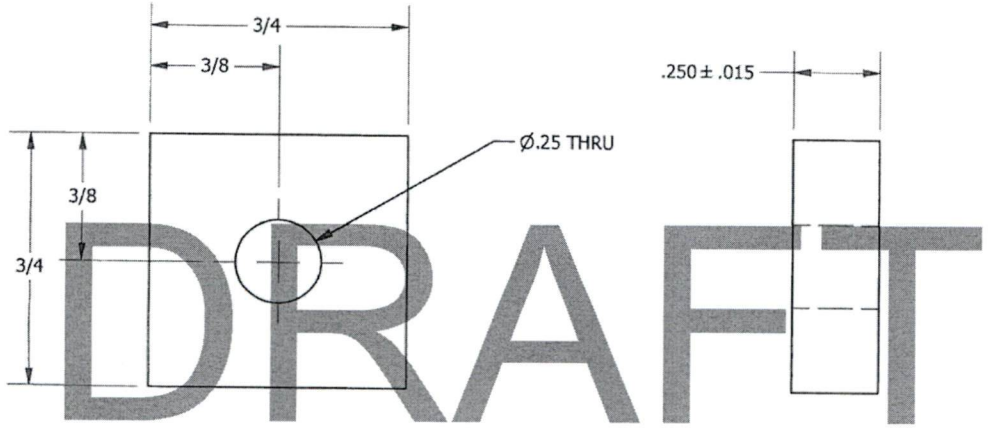


Tel: 1-418-561-4512, Fax: 1-418-836-2291, 860 Marie-Victorin, Saint-Nicolas, Levis, Quebec, Canada G7A 3S9.
www.helitowcart.com info@helitowcart.com

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.



DRAFT

FRONT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-08-08
B	HOLE 0.25", REMOVED REV. LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-09-06
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-08-08
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW FILLER BLOCK 1/4"

DRAWING NUMBER: 314-0012-01 — REV: B

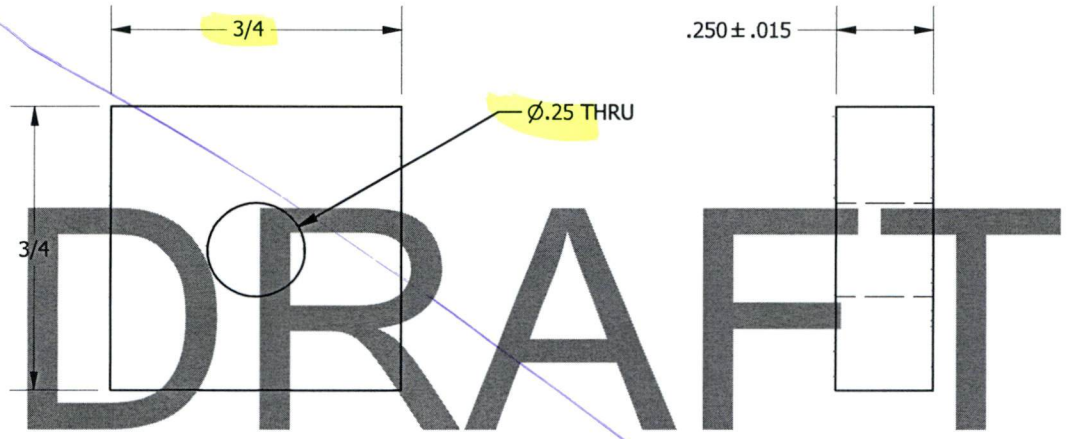
SHEET: 1 OF 1

T. S. soumis à TC

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.



FRONT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-08-08
B	HOLE 0.25", REMOVED REV. LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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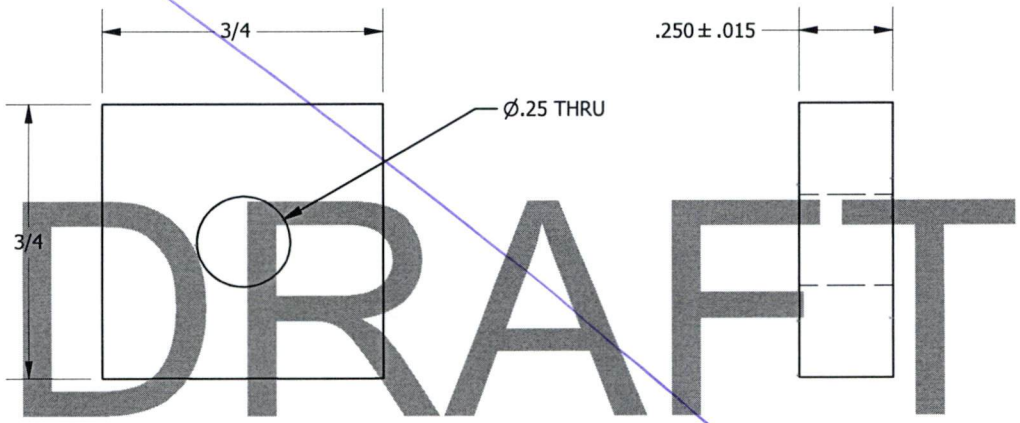
DRAFTED BY: G. LAPOINTE	DATE: 2006-09-06	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW FILLER BLOCK 1/4"
APPROVED TCCA BY: M. ZGELA	DATE: 2006-08-08	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0012-01 REV: B SHEET: 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0012-01	BEARPAW - FILLER BLOCK 1/4	UHMW	---	1/4" THK.



FRONT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-08-08
B	HOLE 0.25", REMOVED REV. LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-09-06
CHECKED BY:	DATE:
APPROVED TCCA BY: M. ZGELA	DATE: 2006-08-08
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A
	SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

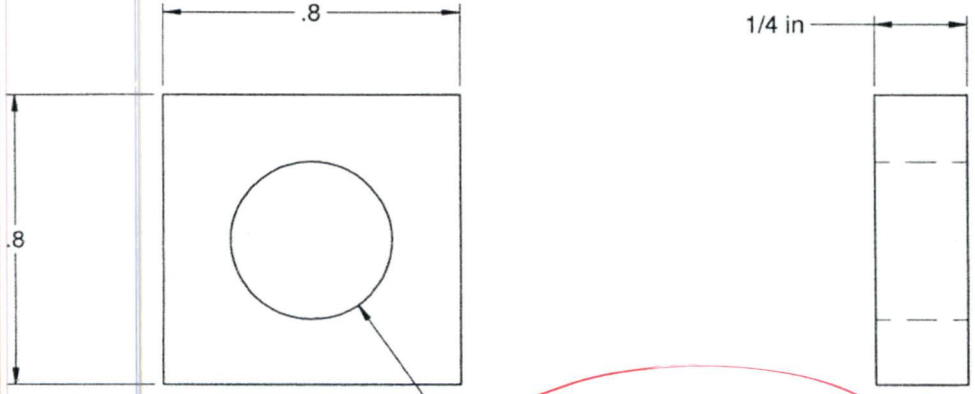
DEFINITION:
BEARPAW
FILLER BLOCK 1/4"

DRAWING NUMBER: 314-0012-01

REV: B

SHEET: 1 OF 1





1/4" DB
~~Ø 7/16 in~~ ~~2006~~.03.18

1/4" DB

Rev.	Description	Date	By
R01	Initial issue	08-08-06	G.L.

HELI TOW CART

Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
Fax : (418) 836-2291
www.helitowcart.com

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TOLERANCES	Titre / Title		Matériel / Material:	
1/X ± 1/32" X.XX ± 0.010" X.XXX ± 0.005" ANGLE ± 1°	Bearpaw - Filler Block 1/4"		UHMW	
PROJECTION:	Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-08-08	Format : A	Échelle / Scale: 1 : 1	Page #: 1 de 1
	Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: ~~VNR099~~		Rev.#: ~~R01~~
	Approuvé par / Approved by: D. Lapointe	Date: (yyyy-mm-dd) 2006-09-07	Numéro de pièce / Part Number: 314-0012-01 ~~A~~		Rev.#: B

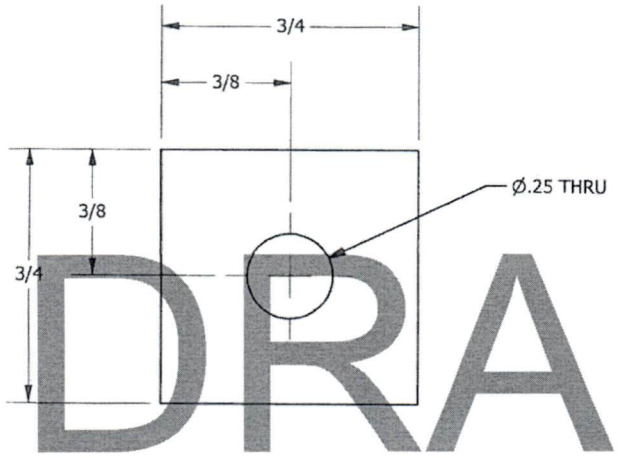
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314-0012-01 A

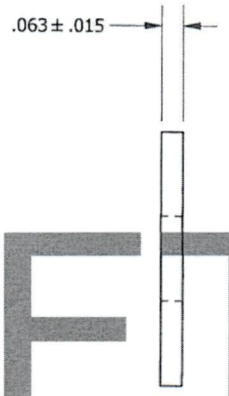
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.



FRONT
SCALE 2 : 1



RIGHT
SCALE 2 : 1

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-09-06
B	HOLE: 0.25", THICKNESS: 0.063", REMOVED REV. LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE — DATE: 2006-09-06
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-09-06
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW FILLER BLOCK 1/16"

DRAWING NUMBER: 314-0014-01 — REV: B

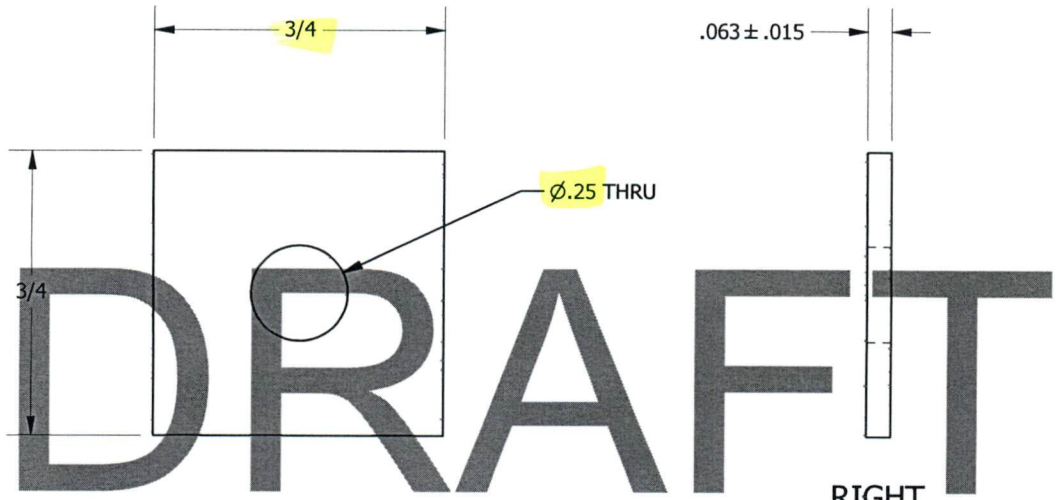
SHEET: 1 OF 1

T.Q. soumis à TC

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.



DRAFT

FRONT
SCALE 2 : 1

RIGHT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	~~0.75~~ → 0.75 INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-09-06
B	HOLE: 0.25", THICKNESS: 0.063", REMOVED REV. LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

~~3/32~~ → 1/16

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DRAFTED BY: G. LAPOINTE	DATE: 2006-09-06	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2006-09-06	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION:
BEARPAW
FILLER BLOCK 1/16"

DRAWING NUMBER: 314-0014-01

REV: B

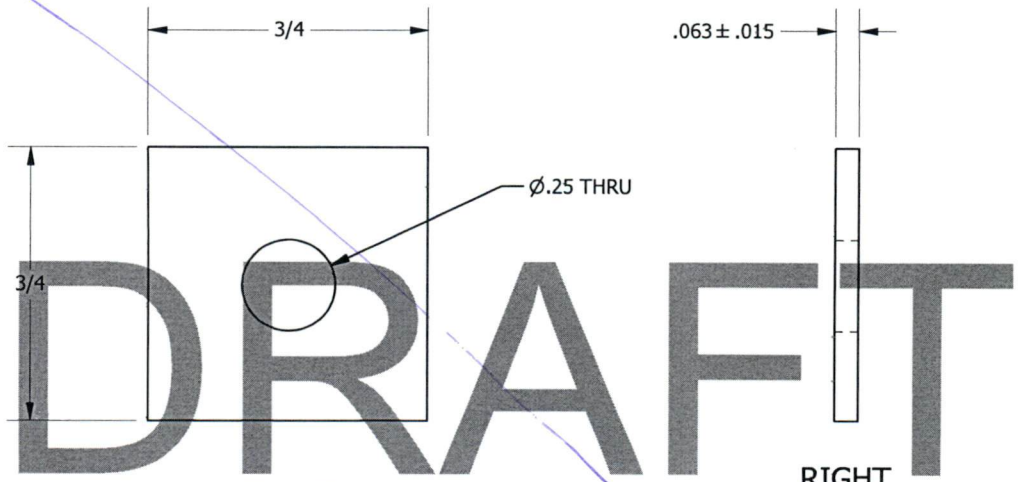
SHEET: 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0014-01	BEARPAW - FILLER BLOCK 1/16	UHMW	---	1/16" THK.



DRAFT

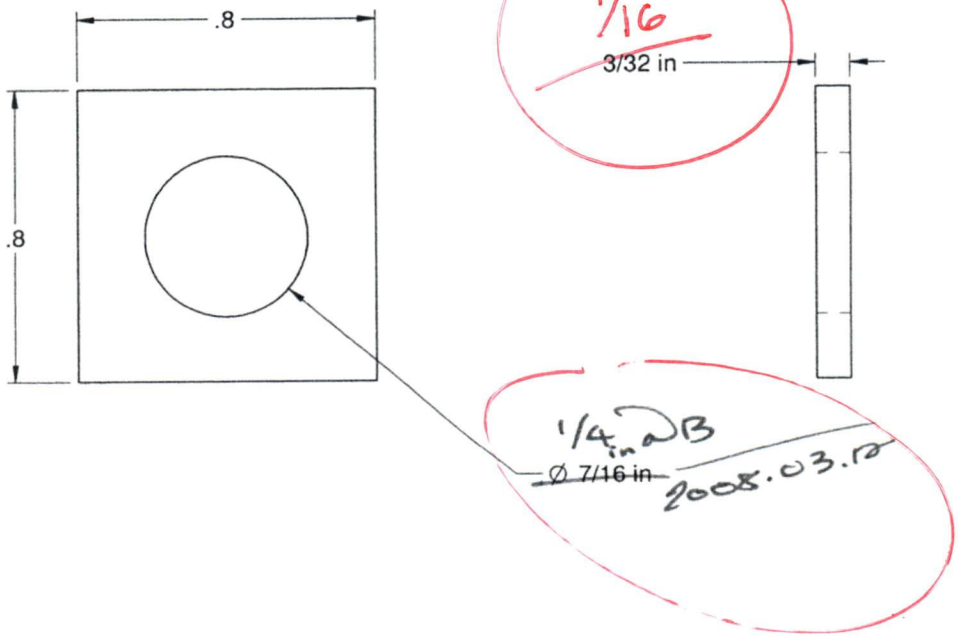
FRONT
SCALE 2 : 1

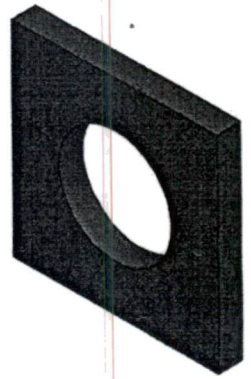
RIGHT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-09-06
B	HOLE: 0.25", THICKNESS: 0.070", REMOVED REV. LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-09-06	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW FILLER BLOCK 1/16"
APPROVED TCCA BY: M. ZGELA	DATE: 2006-09-06	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0014-01 — REV: B
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 1 OF 1





Rev.	Description	Date	Par
R01	Initial Issue	06-09-06	G.L.
RB	tble: 1/4", Thickness 1/16"		

AMEC USINAGE

AMEC Usinage inc.
110, des Grand-Lacs
Saint-Augustin (Québec)
Canada, G3A 2K1
Tél. : (418) 878-4133
Fax : (418) 878-2536
www.amecusinage.com

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TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ± 0.005"
ANGLE ± 1°
PROJECTION:

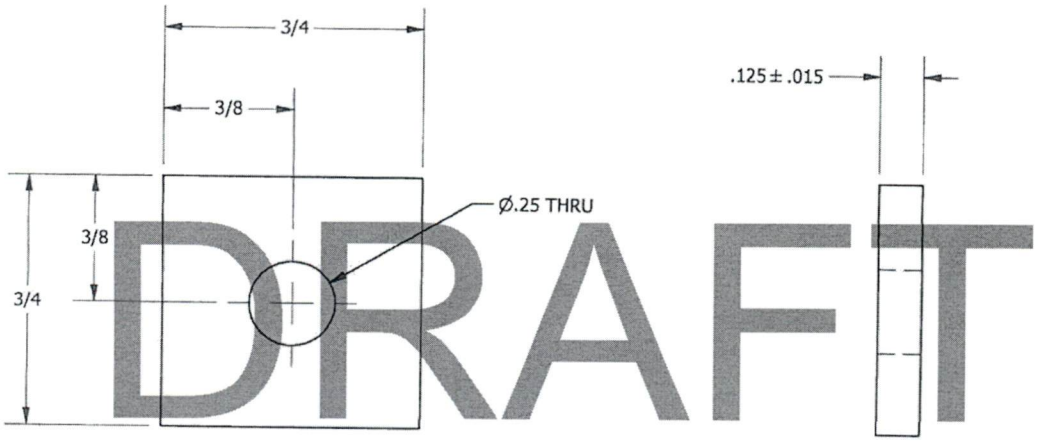
Titre / Title: Bearpaw - Filler Block ~~3/32~~ 1/16"			Matériel / Material: UHMW		
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-09-06	Format: A	Échelle / Scale: N/A	Page #: 1 de 1	
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: ~~VNR103~~		Rev.#: ~~R01~~	
Approuvé par / Approved by: D. Bouchard	Date: (yyyy-mm-dd) 2006.09.07	Numéro de pièce / Part Number: 314-0014-01~~A~~		Rev.#: B	

314-0014-01 A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.



DRAFT

FRONT
SCALE 2 : 1

RIGHT
SCALE 2 : 1

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DRAFTED BY: G. LAPOINTE	DATE: 2006-09-06	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW FILLER BLOCK 1/8"
APPROVED TCCA BY: M. ZGELA	DATE: 2006-09-06	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE A SCALE: N/A	DRAWING NUMBER: 314-0015-01 REV B SHEET: 1 OF 1

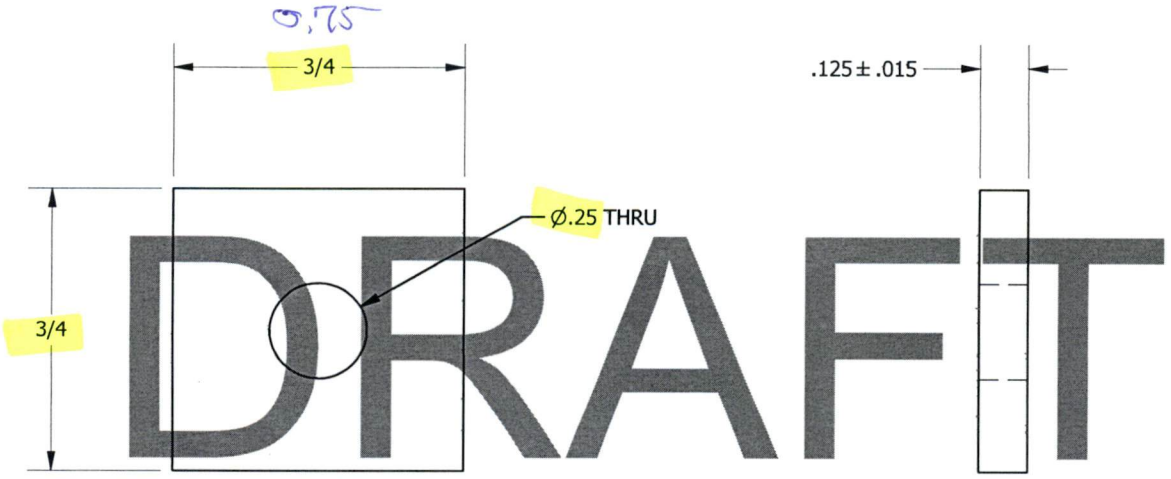
REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-09-06
B	0.25" HOLE, REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

T.P. Soumis à TC

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.



FRONT
SCALE 2 : 1

RIGHT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.LAPOINTE	M. ZGELA	2006-09-06
B	0.25" HOLE, REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006-09-06	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2006-09-06	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION:
BEARPAW
FILLER BLOCK 1/8"

DRAWING NUMBER: 314-0015-01

REV: B

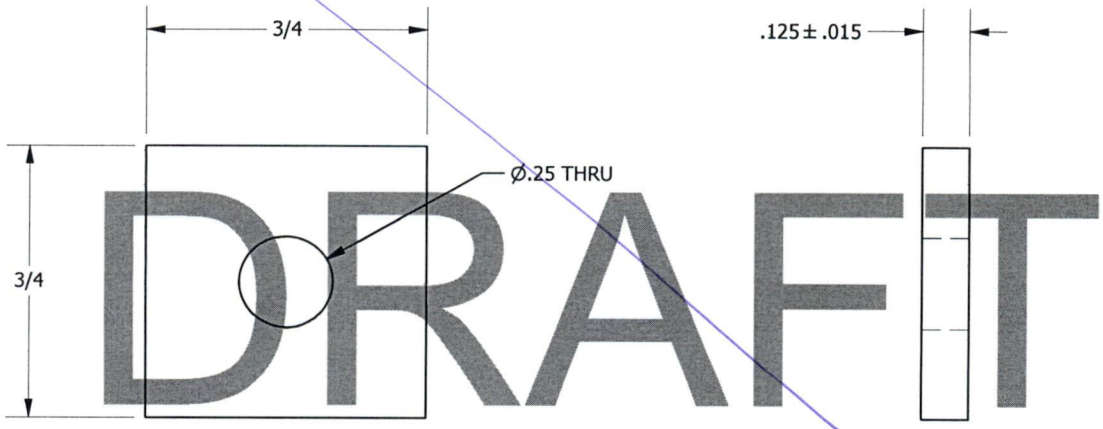
SHEET: 1 OF 1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0015-01	BEARPAW - FILLER BLOCK 1/8	UHMW	---	1/8" THK.



FRONT
SCALE 2 : 1

RIGHT
SCALE 2 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	INITIAL ISSUE	G.L.	M. ZGELA	2006-09-06
B	0.25" HOLE, REMOVED REVISION LETTER FROM P/N	R.B.R.	M. ZGELA	2013-08-09

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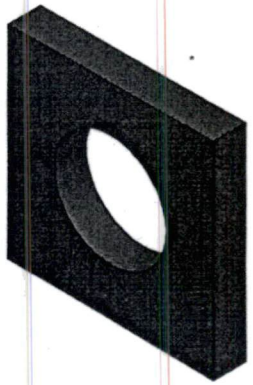
DRAFTED BY: G. LAPOINTE — DATE: 2006-09-06
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2006-09-06
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

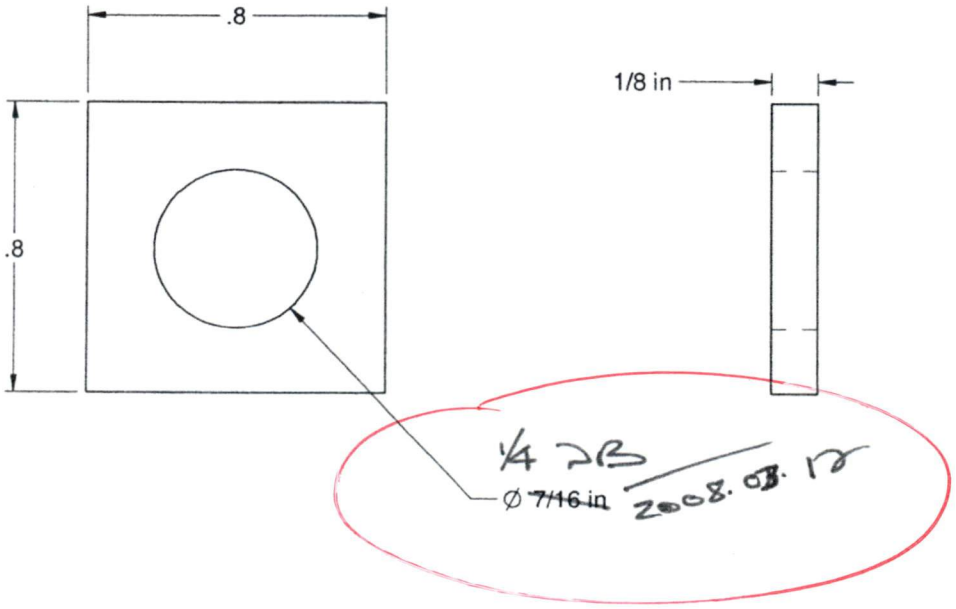
Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW FILLER BLOCK 1/8"

DRAWING NUMBER: 314-0015-01 — REV: B

SHEET: 1 OF 1





Rev.	Description	Date	Par
R01	Initial issue	06-09-06	G.L.

1/4 hole

TOLERANCES				
1/X ± 1/32" X.XX ± 0.010" X.XXX ± 0.005" ANGLE ± 1° PROJECTION	Titre / Title: Bearpaw - Filler Block 1/8"		Matériel / Material: UHMW	
	Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-09-06	Format: A	Échelle / Scale: N/A	Page #: 1 de 1
	Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: ~~VNR104~~		Rev.#: ~~R01~~ R04
	Approuvé par / Approved by: P. Rancourt	Date: (yyyy-mm-dd) 2006.09.07	Numéro de pièce / Part Number: 314-0015-01 ~~A~~		Rev.#: B

AMEC Usinage inc.
110, des Grand-Lacs
Saint-Augustin (Québec)
Canada, G3A 2K1
Tél. : (418) 878-4133
Fax : (418) 878-2536
www.amecusinage.com

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314-0015-01-A

MIL-DTL-23053/5C,
CLASS 1, 2
UL STANDARD 224
CSA STANDARD 198
RoHS COMPLIANT

FIT® Preferred Heat Shrink Products
GENERAL PURPOSE, IRRADIATED POLYOLEFIN
FIT®-221

Alpha Part No. And Size	Minimum Supplied I.D. Inches	mm	Maximum Recovered I.D. Inches	mm	Nom. Recovered Wall Thickness Inches	mm	Standard Packages 4 Ft. Lengths Total Ftg.	Spools Tot. Ftg.	Spools Tot. Ftg.	No. Cut Pieces 6 Inch	No. Cut Pieces 1/2" or 1"
FIT-221-3/64	0.046	1,17	0.023	0,58	0.016	0,41	100	1000		40	1000
FIT-221-1/16	0.063	1,60	0.031	0,78	0.017	0,43	100	1000	100 70	36	1000
FIT-221-3/32	0.093	2,36	0.046	1,17	0.020	0,50	100	500	100 65	32	1000
FIT-221-1/8	0.125	3,18	0.062	1,58	0.020	0,50	100	500	100 60	28	1000
FIT-221-3/16	0.187	4,75	0.093	2,36	0.020	0,50	100	500	100 50	24	1000
FIT-221-1/4	0.250	6,35	0.125	3,18	0.025	0,63	100	250	100 40	20	1000
FIT-221-3/8	0.375	9,53	0.187	4,75	0.025	0,63	100	200	50 35	16	1000
FIT-221-1/2	0.500	12,70	0.250	6,35	0.025	0,63	20	150	50 32	14	-
FIT-221-3/4	0.750	19,10	0.375	9,53	0.030	0,76	20	250	50 24	12	-
FIT-221-1	1.000	25,40	0.500	12,70	0.035	0,88	20	250	50 16	8	-
FIT-221-1-1/2	1.500	38,10	0.750	19,10	0.040	1,02	20	125	- -	5	-
FIT-221-2	2.000	50,80	1.000	25,40	0.045	1,16	20	125	- -	3	-
FIT-221-3	3.000	76,20	1.500	38,10	0.050	1,27	8	100	- -	2	-
FIT-221-4	4.000	101,60	2.000	50,80	0.055	1,40	8	50	- -	1	-

SPOOL COLOR AVAILABILITY CHART

FIT-221 Tubing Size	Put-Up	Colors
3/64"	1000'	Black, Clear
1/16"	1000'	All Colors*
	100'	Black, Clear
	70'	All Colors
3/32"	500'	All Colors
	100'	Black, Clear
	65'	All Colors
1/8"	500'	All Colors
	100'	Black, Clear
	60'	All Colors
3/16"	500'	All Colors
	100'	Black, Clear
	50'	All Colors
1/4"	250'	All Colors
	100'	Black, Clear
	40'	All Colors

FIT-221 Tubing Size	Put-Up	Colors
3/8"	200'	All Colors
	50'	Black, Clear
	35'	All Colors
1/2"	150'	All Colors
	50'	Black, Clear
	32'	All Colors
3/4"	250'	All Colors
	50'	Black, Clear
	24"	All Colors
1"	250"	All Colors
	50"	Black, Clear
	16"	All Colors
1-1/2"	125'	Black, Clear
2"	125'	Black, Clear
3"	100'	Black, Clear
4"	50'	Black, Clear

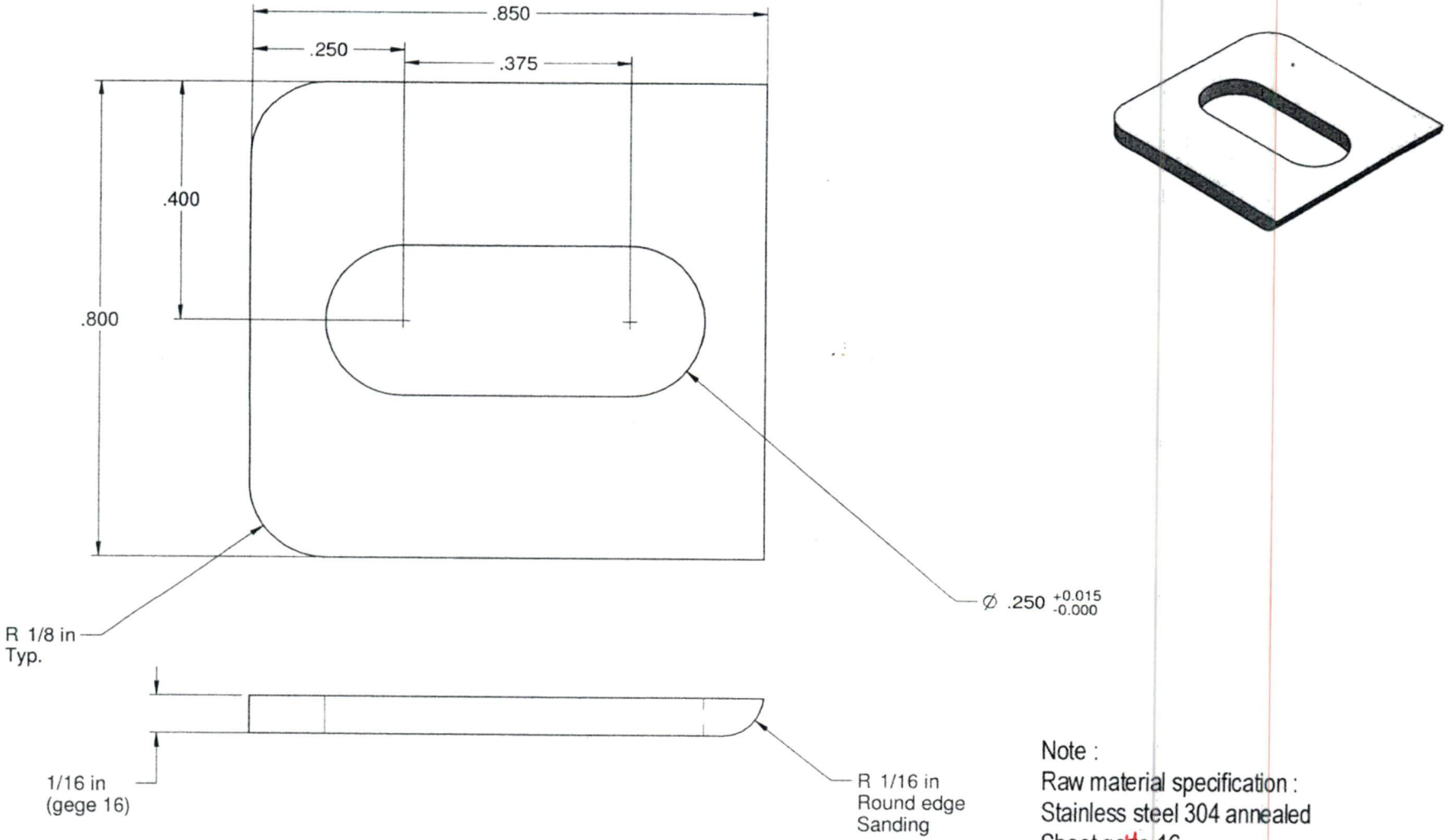
*All colors include black, white, clear, red, yellow, blue, green

SEE PAGE 116
FOR
ECONOMICAL BULK PACKAGES!

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Email: info@alphawire.com
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D. Bailey 2006.09.06

T.A. Sonnichsen



Note :
Raw material specification :
Stainless steel 304 annealed
Sheet gage 16

Rev.	Description	Date	By
R.C			
R04	0.800 was 0.750 - 0.850 was 0.875	31-07-06	G.L.
R03	Issue for production	04-04-06	G.L.

HELI TOW CART

Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
Fax : (418) 836-2291
www.helitowcart.com

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TOLERANCES
1/X ± 1/32"
X.XX ± 0.010"
X.XXX ±
ANGLE ± 1°
PROJECTION:

Titre / Title: Bearpaw - Slotted clip support			Matériel / Material: SEE NOTE	
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format: A	Échelle / Scale: 4 : 1	Page #: 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR089		Rev.#: R04
Approuvé par / Approved by: D. Lapointe	Date: (yyyy-mm-dd) 06.08.01	Numéro de pièce / Part Number: 314-0007-15 B		Rev.#: C

314-0007-15 B

Ne sera plus
utilisée sur
BP44

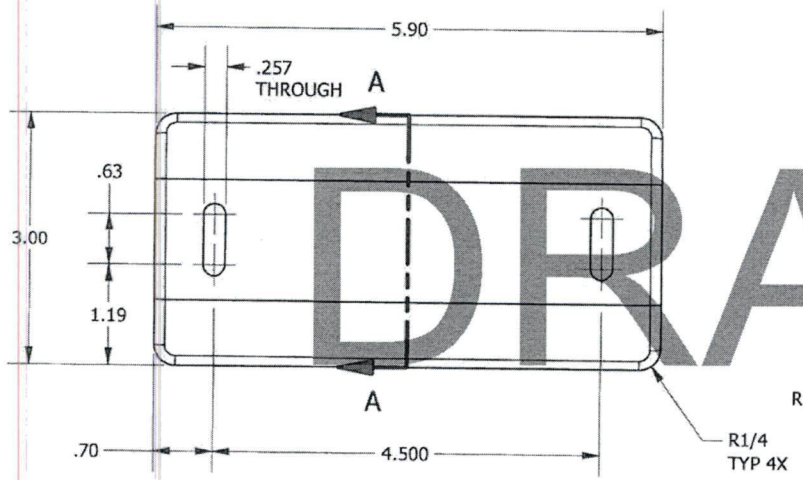
Donc on touche
par oreille
et encore testé
sur BP350

NOTES:

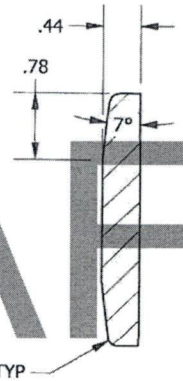
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX. ENSURE EDGES ARE SMOOTH.

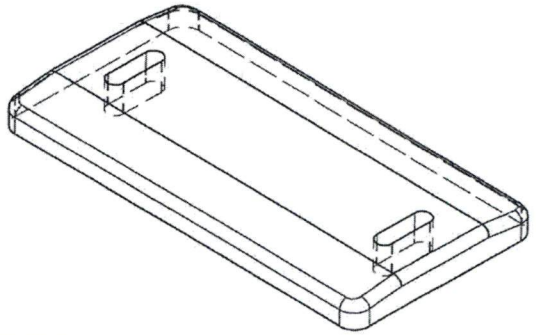
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.



TOP
SCALE 1 / 2



SECTION A-A
SCALE 1 / 2



ISO
SCALE 1 / 2

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2009-10-22
B	MODIFICATION OF ANGLE AND ADDITION OF SLOTTED HOLES	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER — DATE: 2009-10-22
CHECKED BY: — DATE:
APPROVED TCCA BY: M. ZGELA — DATE: 2009-10-22
IF NOT SPECIFIED GENERAL TOLERANCE: 1/X ± 1/32, X.XX ± 0.010", X.XXX ± 0.005", ANG. ± 1°
UNITS: INCH
SIZE: A
SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION: BEARPAW FILLER BLOCK REAR

DRAWING NUMBER: 314-0022-01 — REV: B

SHEET: 1 OF 1

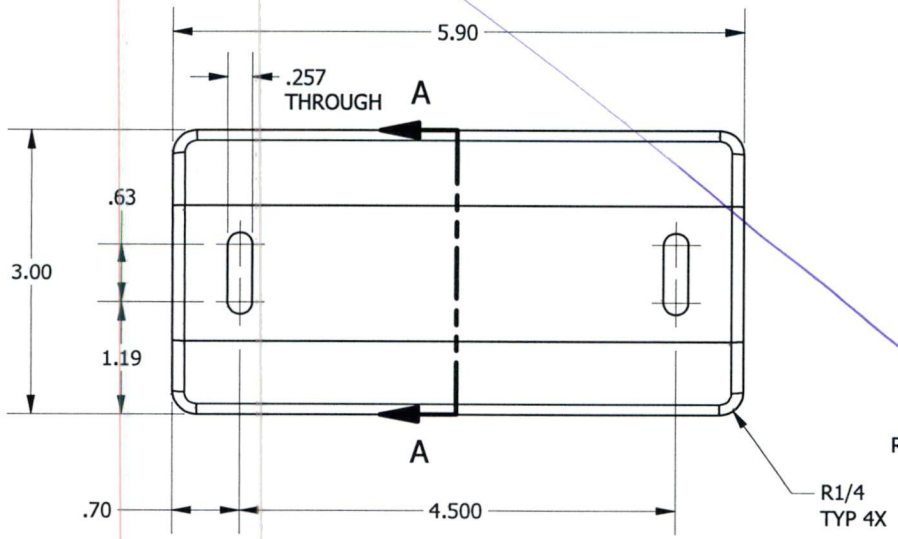
T.q. soumis à TC

NOTES:

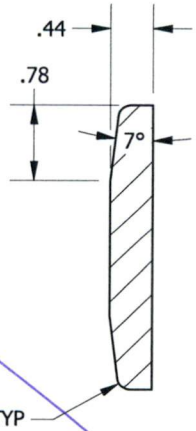
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX. ENSURE EDGES ARE SMOOTH.

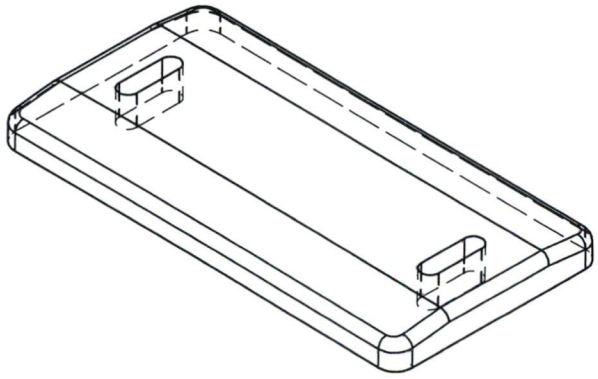
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SI
1	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" TH



TOP
SCALE 1 / 2



SECTION A-A
SCALE 1 / 2



ISO
SCALE 1 / 2

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2009-10-22
B	MODIFICATION OF ANGLE AND ADDITION OF SLOTTED HOLES	R.B.R.	M. ZGELA	2013-08-09

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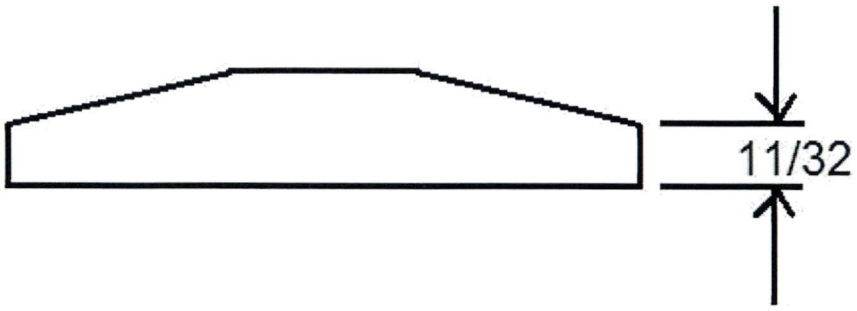
DRAFTED BY: S. BERNIER	DATE: 2009-10-22	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW FILLER BLOCK REAR
APPROVED TCCA BY: M. ZGELA	DATE: 2009-10-22	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0022-01 — REV: B
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 1 OF 1

Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: August-28-13 4:50 PM
To: Nathalie Barbeau
Subject: Rear filler block
Attachments: 314-0022-01.pdf; 314-0022-01.stp

Bonjour Nathalie,

Voir les documents en pièce jointe. La hauteur du côté est de 11/32".



Renaud Berthelot-Richer, ing. jr.
CONCEPTION STRUCTURE AÉRONAUTIQUE
AERONAUTICAL STRUCTURE DESIGN
T: 819.601.8049 #211
renaudb@ats-ast.com

Aviatech
SERVICES TECHNIQUES INC.
TECHNICAL SERVICES INC.

2595 St-Olivier
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G9A 4G1

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www.ats-ast.com

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Students have shown better test longer when they're not cut down.
Avant d'imprimer, pensez à l'environnement.

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: June-02-13 7:31 AM
To: 'Mirko Zgela'
Cc: 'Lucien Barbeau'; 'nbarbeau@helitowcart.com'
Subject: Bearpaws pour R66 / Photos et Besoin d'ajustement de pente du pad / Demande de soumission
Attachments: Pad_Profile_Correction_Angle_2013_05_30.pdf; DSC08891A.jpg; DSC08887a.jpg; DSC08886A.jpg; Change Slope Project (2013 05 30).pdf

Allo Mirko,
Tel que promis les infos requises pour élaborer ta soumission pour faire le travail relatif au BP66.
Avec ces infos je t'ai transmis tout ce que tu m'as demandé pour être en mesure d'évaluer.

APPROBATION DU R66!
Tu as du voir le message que je viens de te faire parvenir de notre adresse générale: le R66 a enfin été approuvé vendredi.

PHOTOS BP44 AVEC R66
Suite à ta demande de photos j'ai envoyé Jacob à l'aéroport jeudi mettre notre bearpaw avec un mécanicien sur le R66 de Carol Lagacé.
Jacob m'a rapporté les photos requises. Trouve, ci-joint.

Jacob dit que le pad ainsi que les clips sont aux bons endroits et que c'est la même configuration. (voir photos)
Comme te t'ai confirmé le R66 pèse 300 lbs de moins que le R44.

PENTE DU PAD ET DU BLOC D'APPUI :
Jacob m'a toutefois signalé que le tube en cône ne repose pas sur l'arrière du pad et de son block d'appui qu'on avait ajouté par la suite au ECO no 5 quand on a allongé le pad et créé un bloc de support arrière.
(Il avait correctement enlevé le shoe mais gardé les visses sous le skid).
Le skid arrete de toucher le pad au bout du tube régulier.
À partir du point que le skid est en forme de cône vers l'arrière, il ne touche plus au pad sauf à un point : à l'endroit au sommet du bloc d'appui qui signale le début de la coupe en pente vers le bas.
Est-ce volontaire que l'on ne touche pas sur toute la longueur de ce cône sauf au bout?

On a comme une plongée très profonde dans le pad, puis cela monte en pente, mais à une pente qui ne semble pas idéale.
Selon nos calculs nous avons une pente de +/- 12.5 deg et ce serait mieux d'avoir une pente de +/- 7.5 degrés. (on a fait ce calcul avec un skid qu'on a au bureau de R44)
Voir le croquis qu'on a préparé ci-joint.
Je crois qu'il serait possiblement nécessaire de revoir la pente du pad et de son bloc d'appui pour mieux épouser la partie en cone du skid (s'il faut que cela s'épouse? Faut-il que cela ne touche pas?)

Jacob dit que si on sert les clips alors le pad a tendance à faire le rond (voir la courbe que j'ai tenté de dessiner sur l'un des documents ci-joint).
Aussi, sur l'une des photos on voir l'air sous le tube mais Jacob dit que c'est seulement sur la moitié du tube. L'autre moitié on touche au bloc de support.

Je n'ai eu aucun commentaire de clients vs le non épousement à date depuis qu'on a lancé le ECO5 (pad plus long avec bloc de support).
Et quand on prends des photos tout a l'air correct.
C'est quand on regarde de proche et sous le patin qu'on voit que cela n'épouse pas bien.

Je t'ai expédié vendredi une paire de BP44 ainsi qu'un bout de skid de R44; Tu les recevras lundi.
C'est le bout de skid et la paire de BP avec lesquels on a pris nos mesures de degrés.
On voulais te donner l'outil pour etre en mesure de réellement évaluer le degré de pente nécessaire.(tu arriveras sans doute à des mesures plus précises)

PROJET BP66 :
Dans le câdre du projet d'ajout du BP66 à notre certification de BP44, je voudrais donc que l'on évalue si nécessaire de revoir la pente du pad et de son bloc d'appui.
Tel que discuté, on a accès à un R66 et on peut se rendre chez vous pour les tests si requis.

J'attends tes commentaires et ta soumission budgétaire.
J'aimerais démarrer le projet dès que possible .
Ce serait l'fun d'avoir le dossier fait cet été.
Aussi je suis en fin de batch de BP44 et je veux lancer une nouvelle production de PADS vers juillet pour les avoir pour sept quand on aura la certif.
Donc, faut que je me dépêche à relâcher cette composante pour que tout soit prêt pour septembre.

Hâte de t'entendre à nouveau,
Ciao!

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

From: Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Sent: May-30-13 10:32 AM
To: 'Mirko Zgela'
Cc: 'Lucien Barbeau'
Subject: Flight Manual for R66

Mirko,
J'ai appelé Ulrich chez Canadian. Il dit que le Flight Manual est sur le site web de Robinson.
Voir le lien suivant (Publications / R66 turbine / R66 Pilot Handbook)

http://www.robinsonheli.com/r66_poh.html

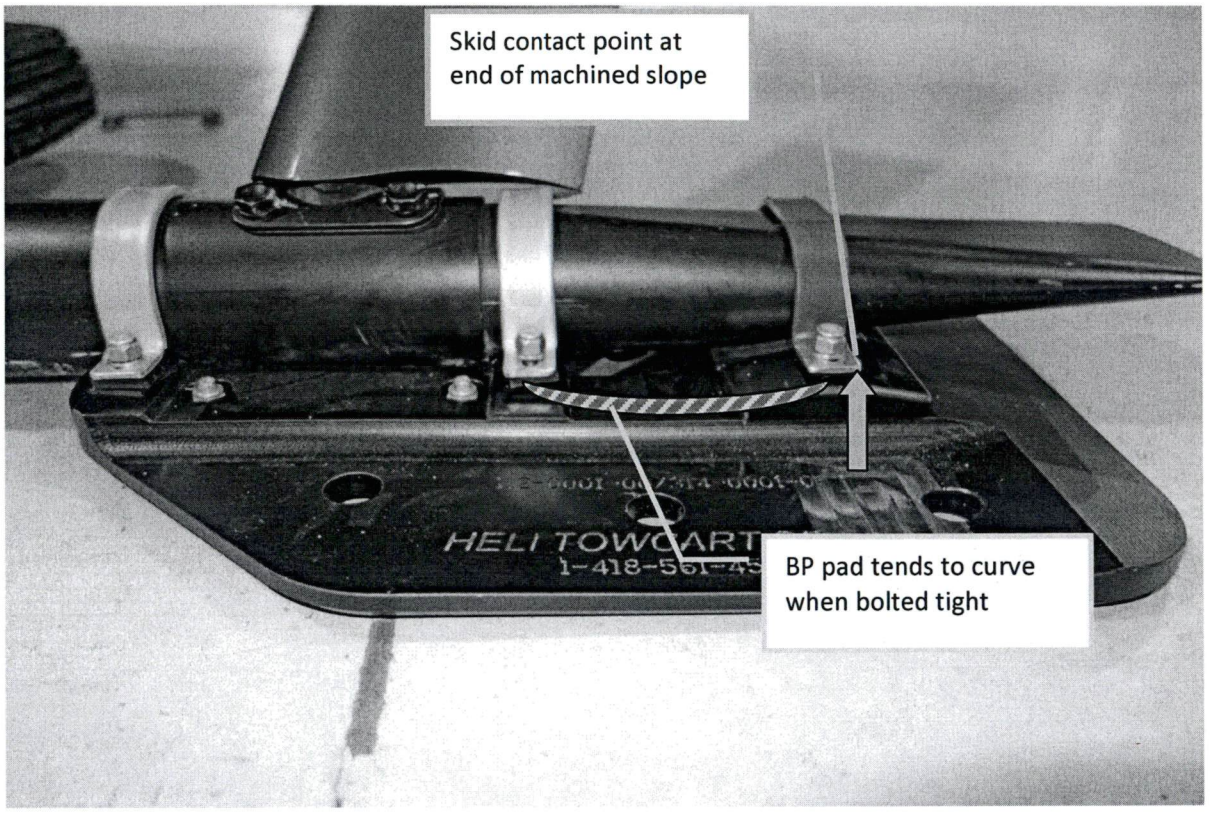
Il me confirme aussi que le R66 est 300lbs moins lourd que le R44. Voir p. 2 -3 de ce manuel.

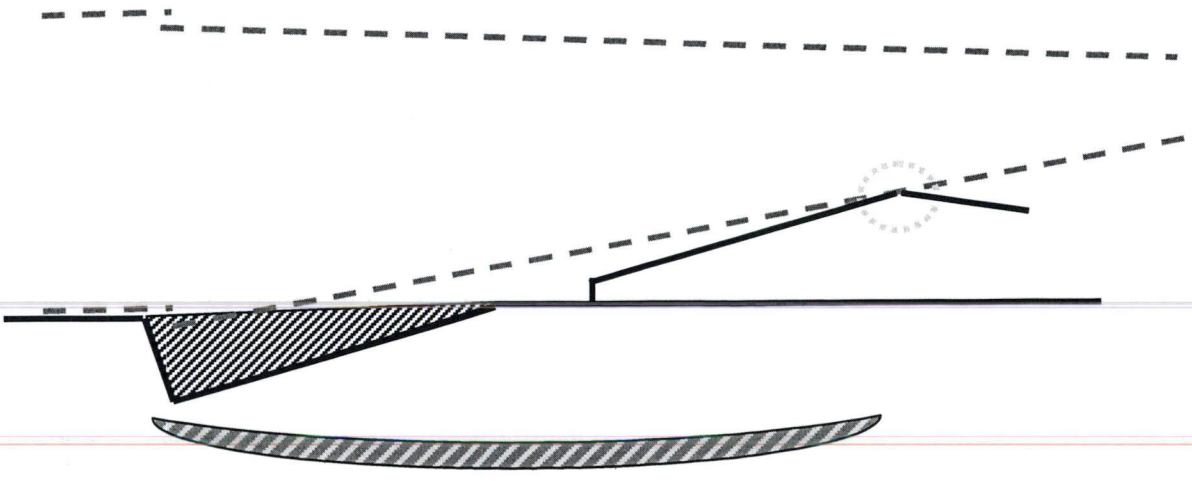
Pour les photos, je vais devoir organiser une séance d'installation chez Canadien.
Je te les envoie dès que possible.

Ciao!

Nathalie Barbeau
VP Commercial Affairs

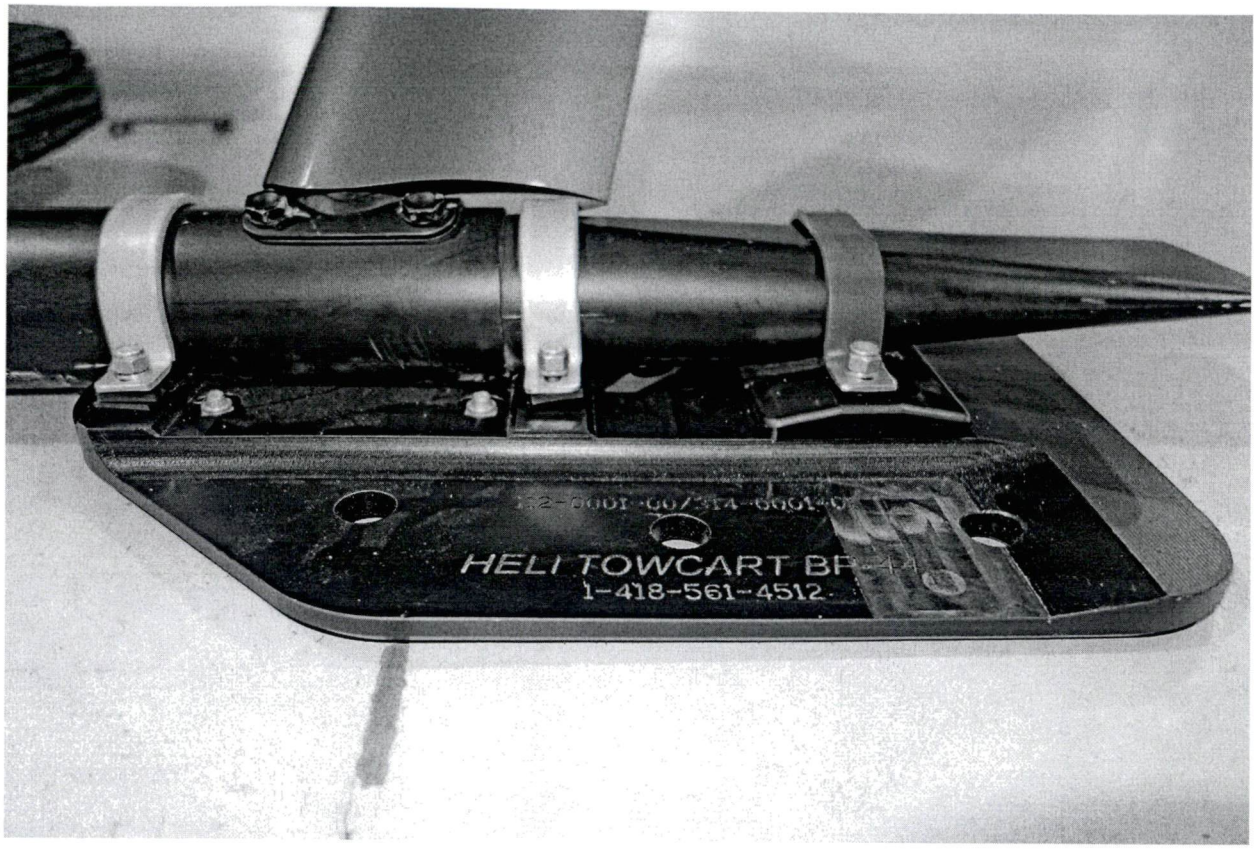
Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
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T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com


Skid contact point at
end of machined slope
BP pad tends to curve
when bolted tight







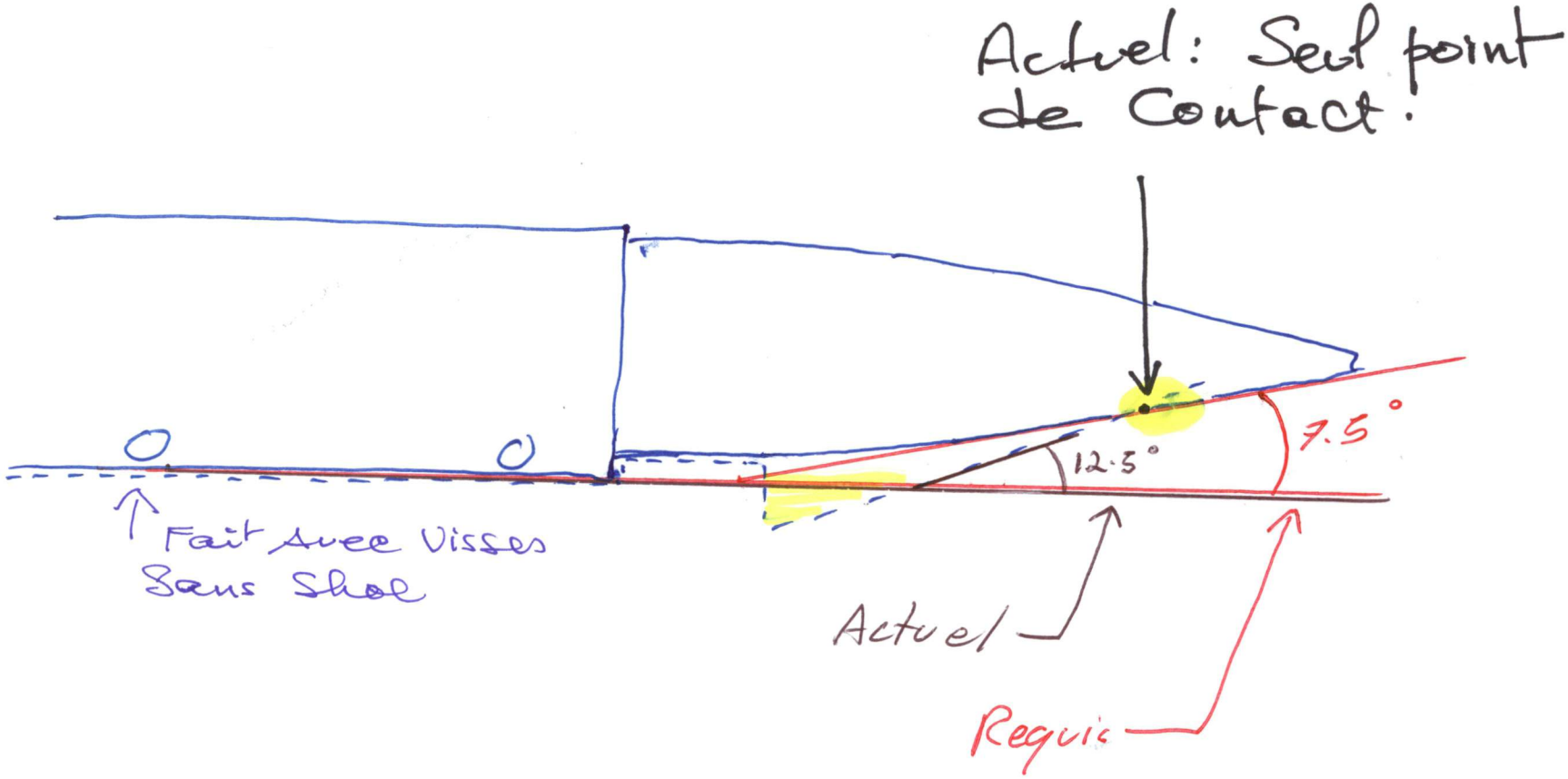

HELI TOWCART BP
1-418-561-4512

Entente de location

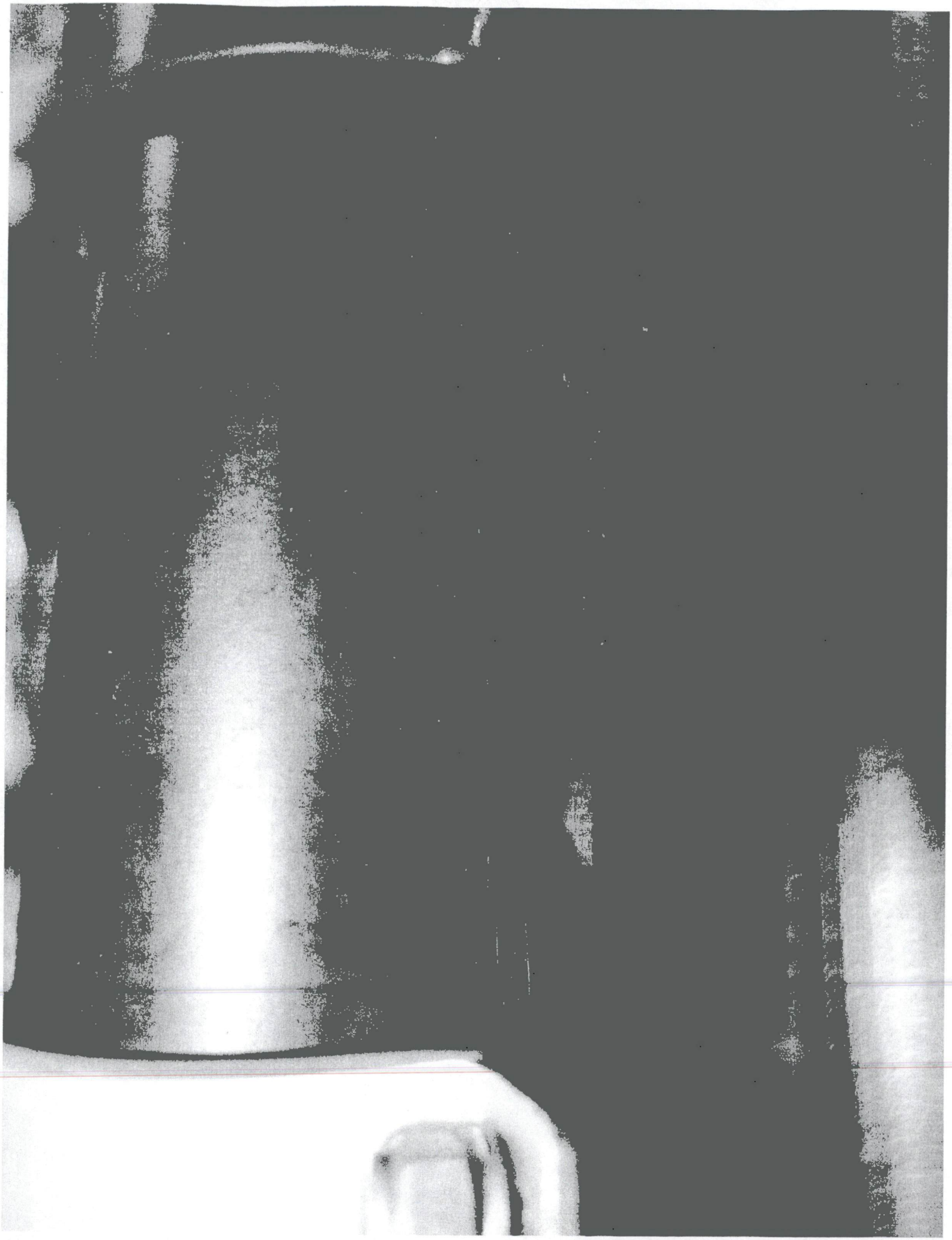
helitowcart.com

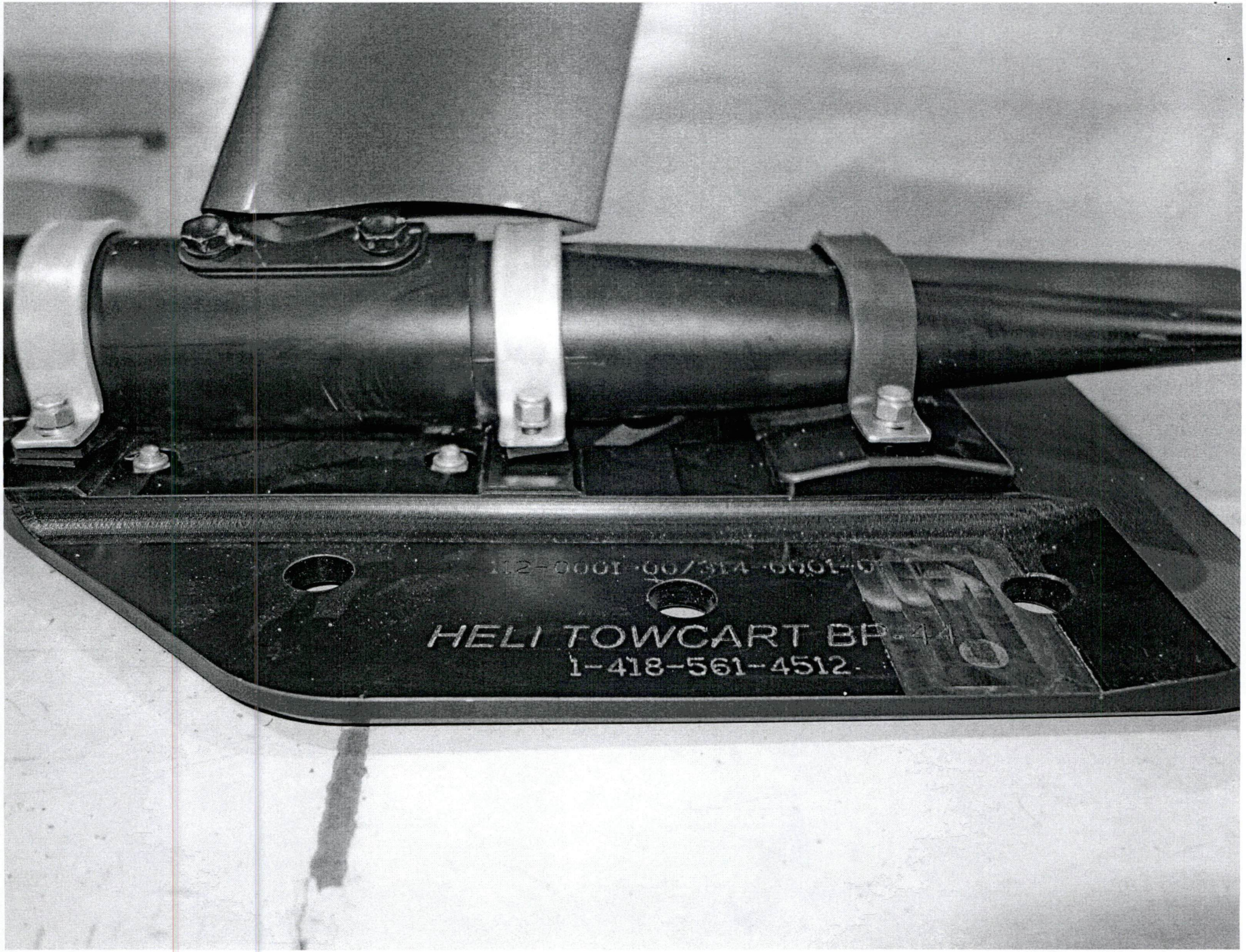
Facture No:	**4573**	Date: 14 mai 2013			
		Expédier à:	**même**	Vendeur:	Helitowcart (Vanair inc.)
Adresse:	**Panorama Helicoptères** 360 ch. De L'Aéroport Alma, QC G8B 5V2				877A Alphonse-Desrochers St-Nicolas, Levis, Quebec, Canada, G7A 5K6
				Contact:	Nathalie Barbeau
Contact no 1:	**Régis Villeneuve**	Contact:		Email:	info@helitowcart.com
Email:	rvilleneuvepanorama@bellnet.ca	Email:		Tel:	+1 418 561 4512
Tel:	418 955-1401	Tel:		Fax:	+1 418 836 4575
Fax:					
Contact no 2:	Donald Manuel	Courtier:		Fed Tax ID:	120 493 044 RT0001
Email:		Transporteur:		Prov Tax ID:	100 228 0473 TQ0002
Tel:				Nafta:	120 493 044
Termes:	**Selon la cédule de paiement en annexe**	Qté de colis:		US Bond:	990 458 243
Durée de la location:	**Du 7 juin 2013 au 7 octobre 2014**	Poids:			
		Dimension:		**Produits faits au Canada**	

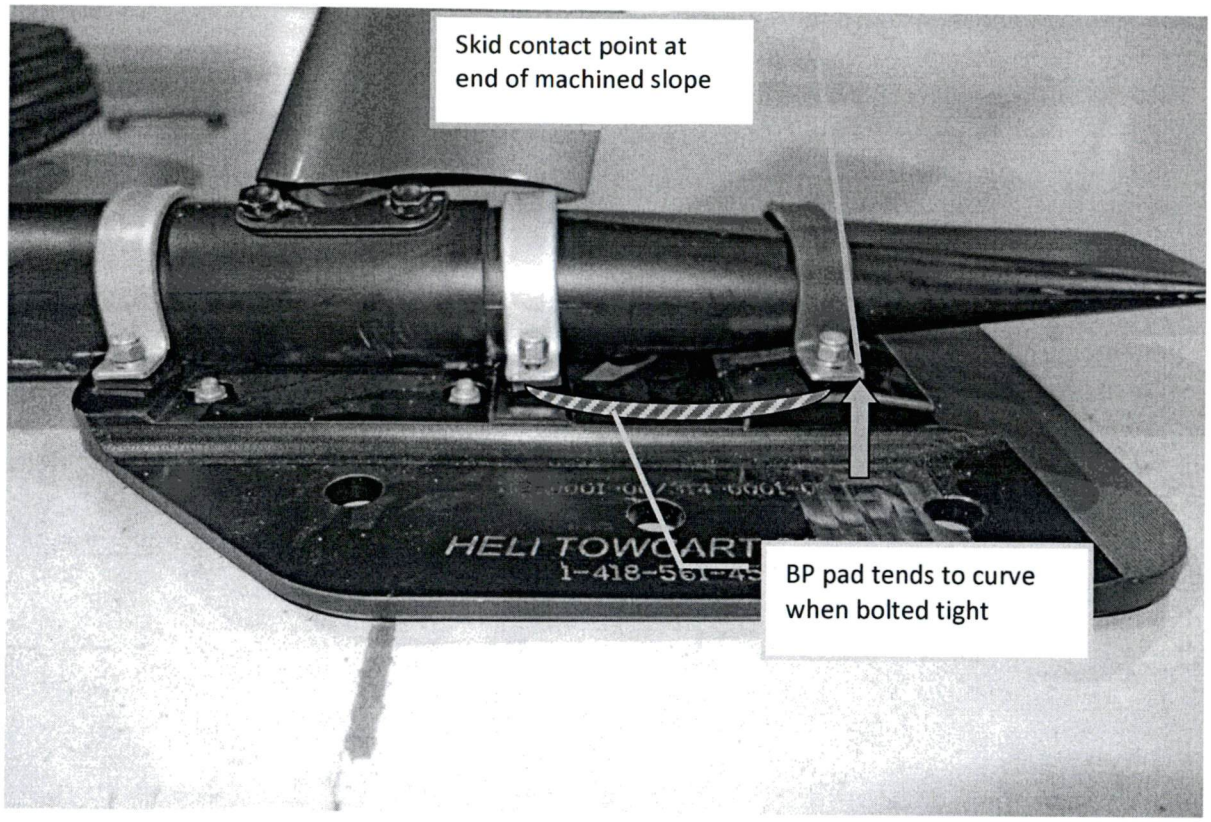
Modèle	Description de l'équipement en location	Code HS:	Qté	Valeur de l'équipement		Devise Can$
V1032	**Heli-Carrier avec extension de 48" - # de série 18068**		1	27,195.20		27,195.20
	Incluant:					0.00
AT1000-AS350	**Attaches pour AS350**		1			0.00
AT1000-B206L	**Attaches pour B206L, B407, B212**		1			0.00
BAGM27	**Batteries AGM scellées sans entretien**		4			0.00
OPS	**Option APU**		1			0.00
OLS	**Option éclairage nocturne**		1			0.00
	Conditions de l'entente de location avec option d'achat:					
	A: Non responsible de bris ou de tout autre incident ou accident					
	B: Preuve d'assurances de l'équipement à être fournie par Panorama Hélicoptères					0.00
	C: Une fois le bail de location terminé, le locateur devra remettre l'équipement en bonne condition (tel un bon père de famille)					0.00
	D: Advenant l'achat par Panorama à la fin du bail, un avis de 60 jours devra nous être envoyée stipulant l'intention d'acheter					0.00
						27,195.20
					Transport:	
					Total:	**27,195.20**
					GST/TPS:	1,359.76
					TVQ:	2,712.72
						31,267.68

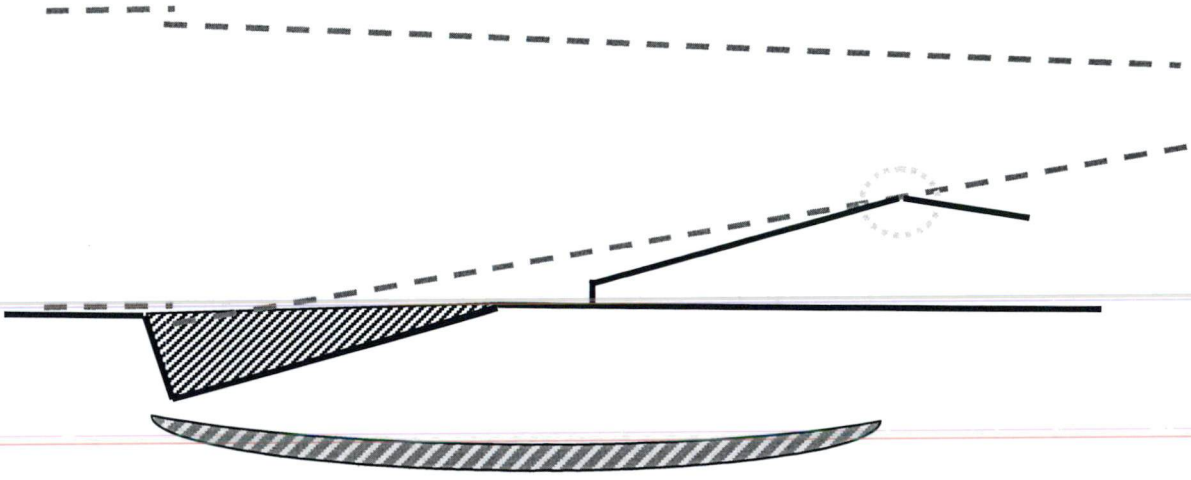

Actuel: Seul point de Contact!
12.5°
7.5°
Fait avec Visses Sans Shoe
Actuel
Requis

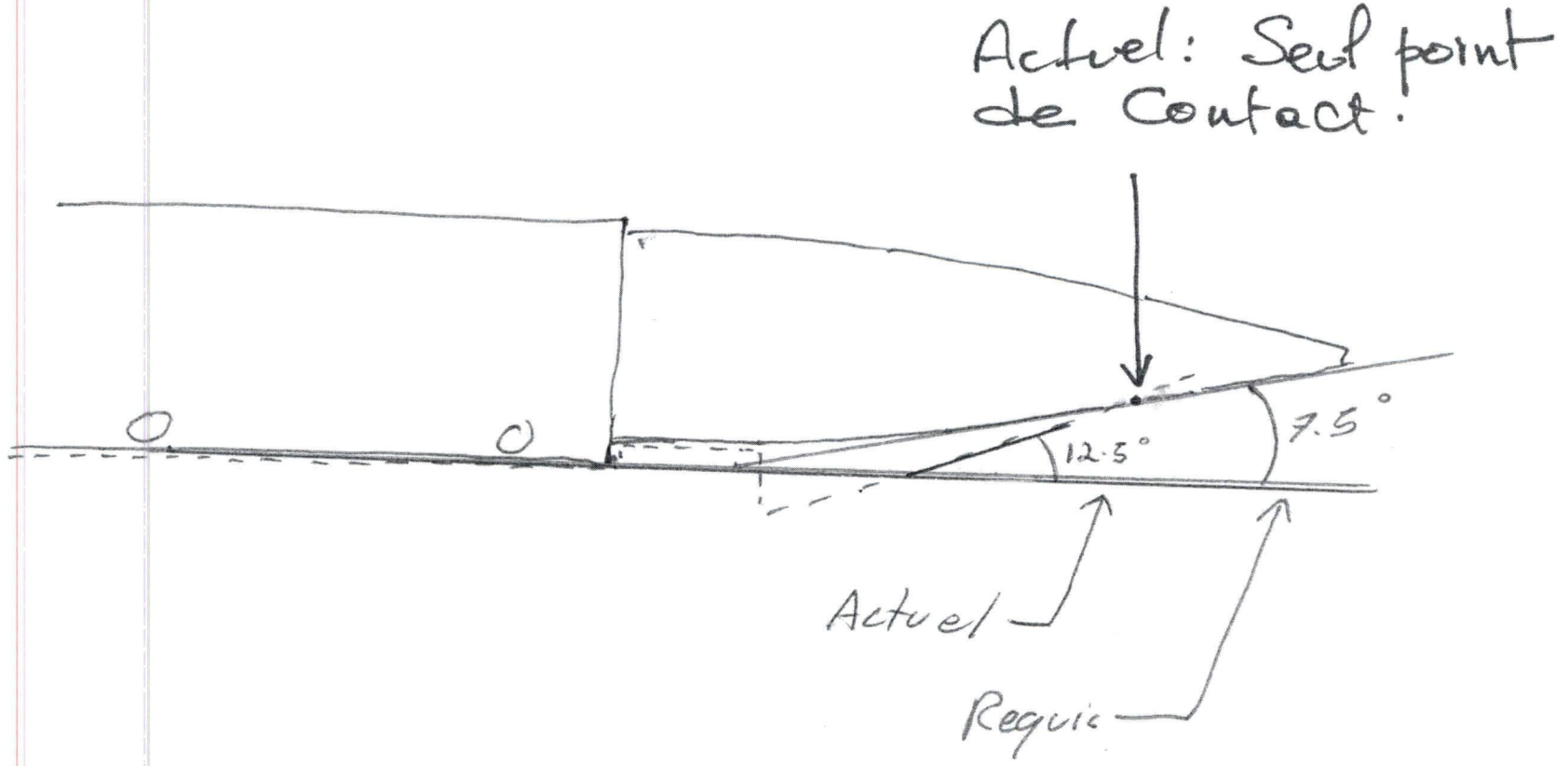


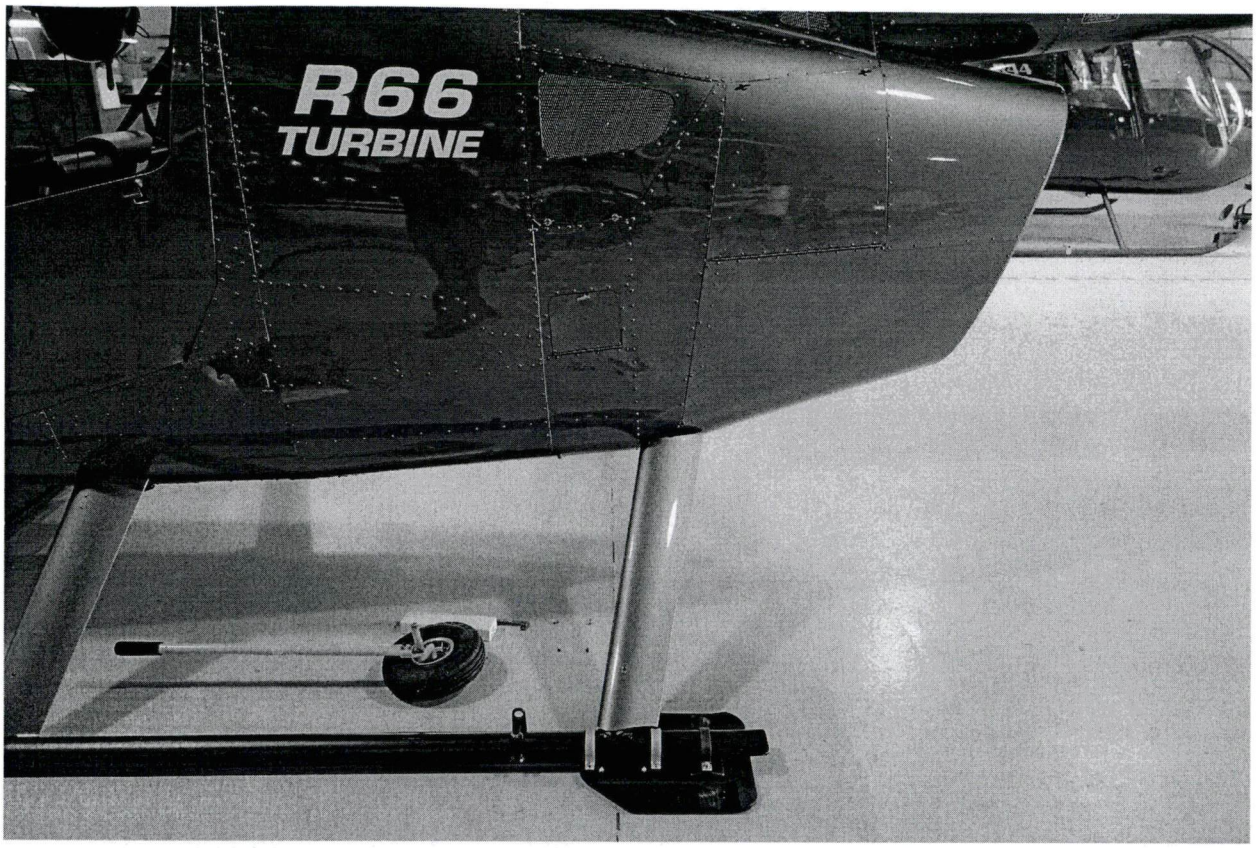


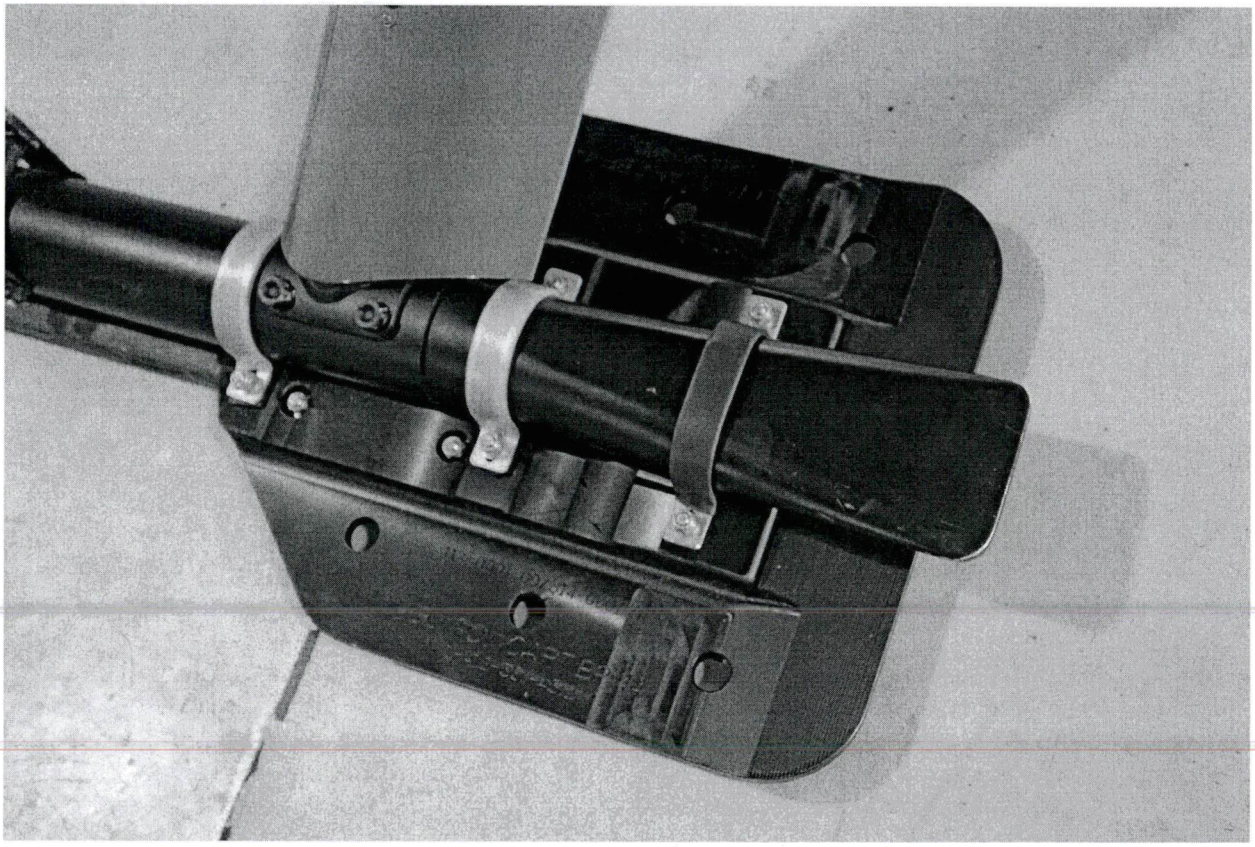

HELI TOWCART BP-44
1-418-561-4512

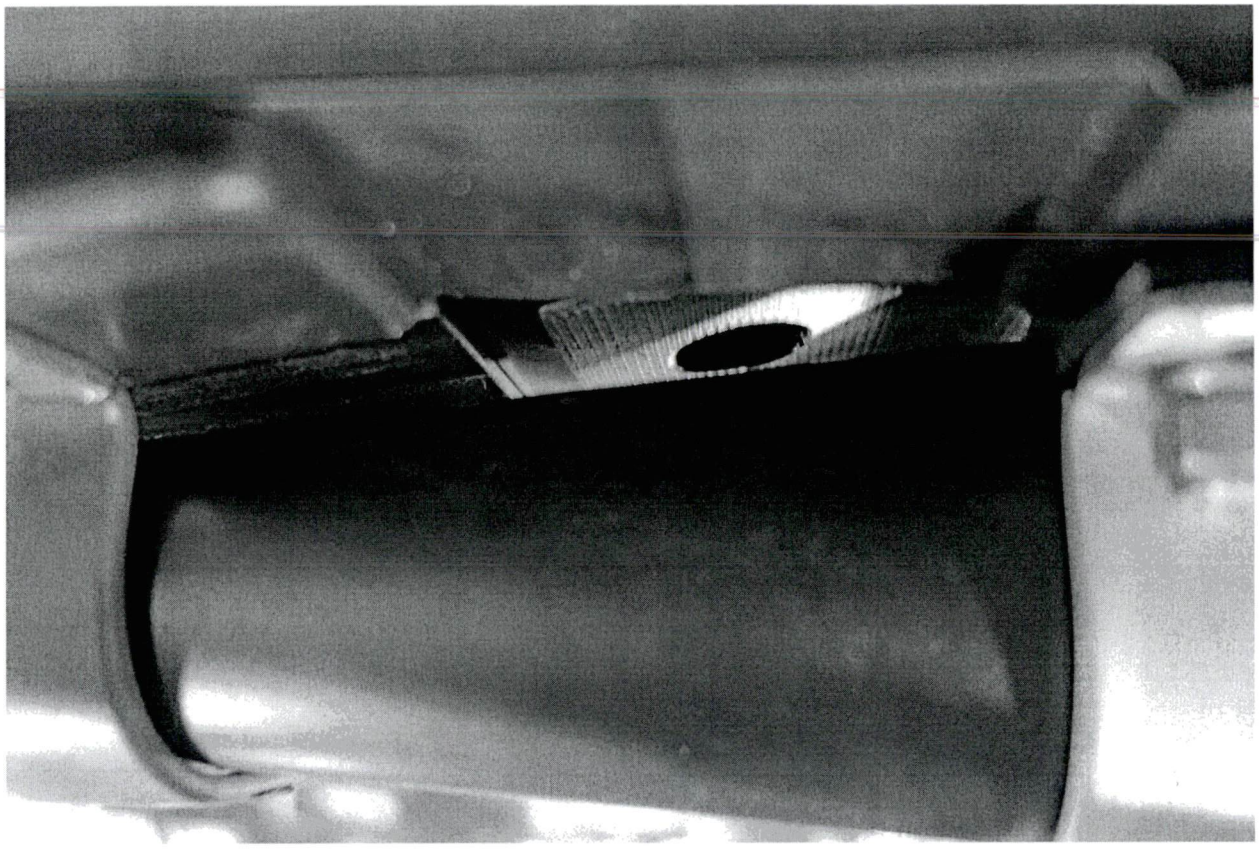

Skid contact point at
end of machined slope
BP pad tends to curve
when bolted tight

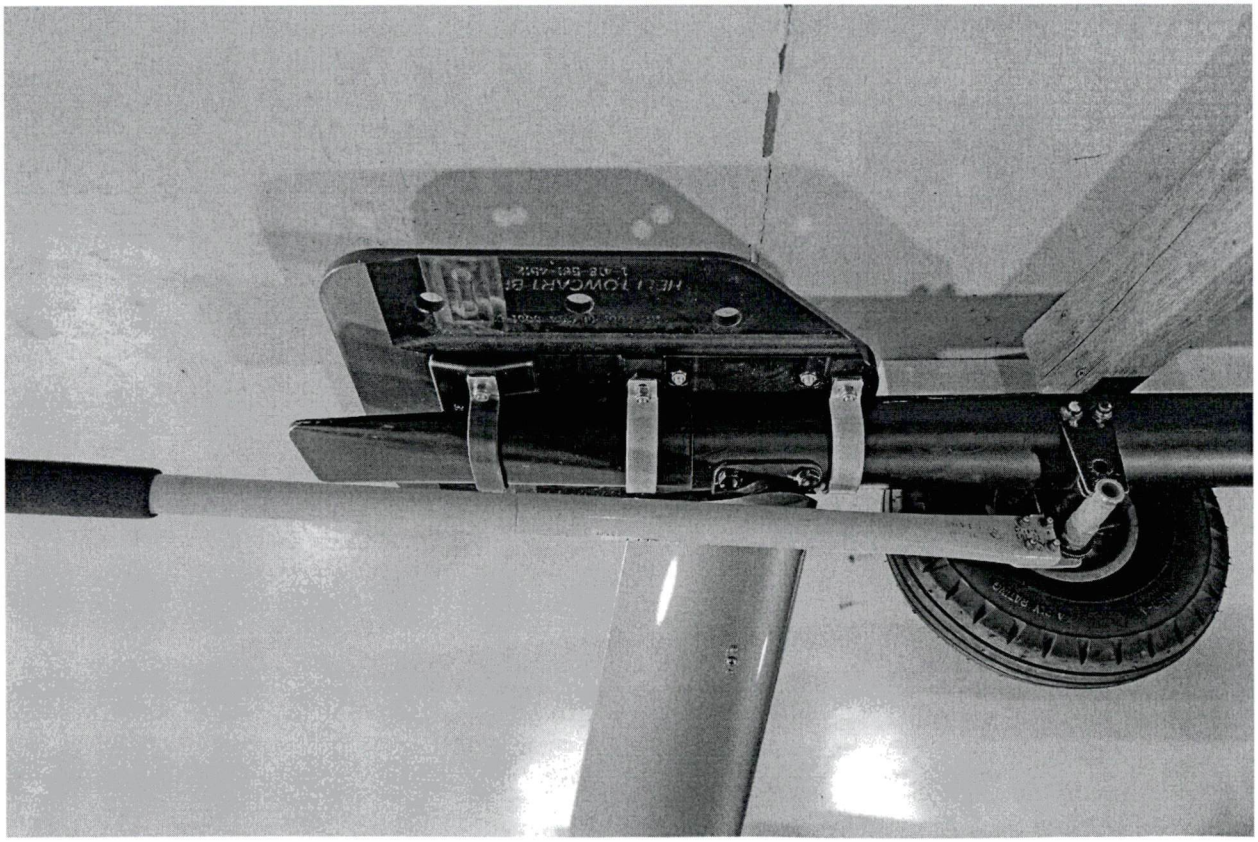


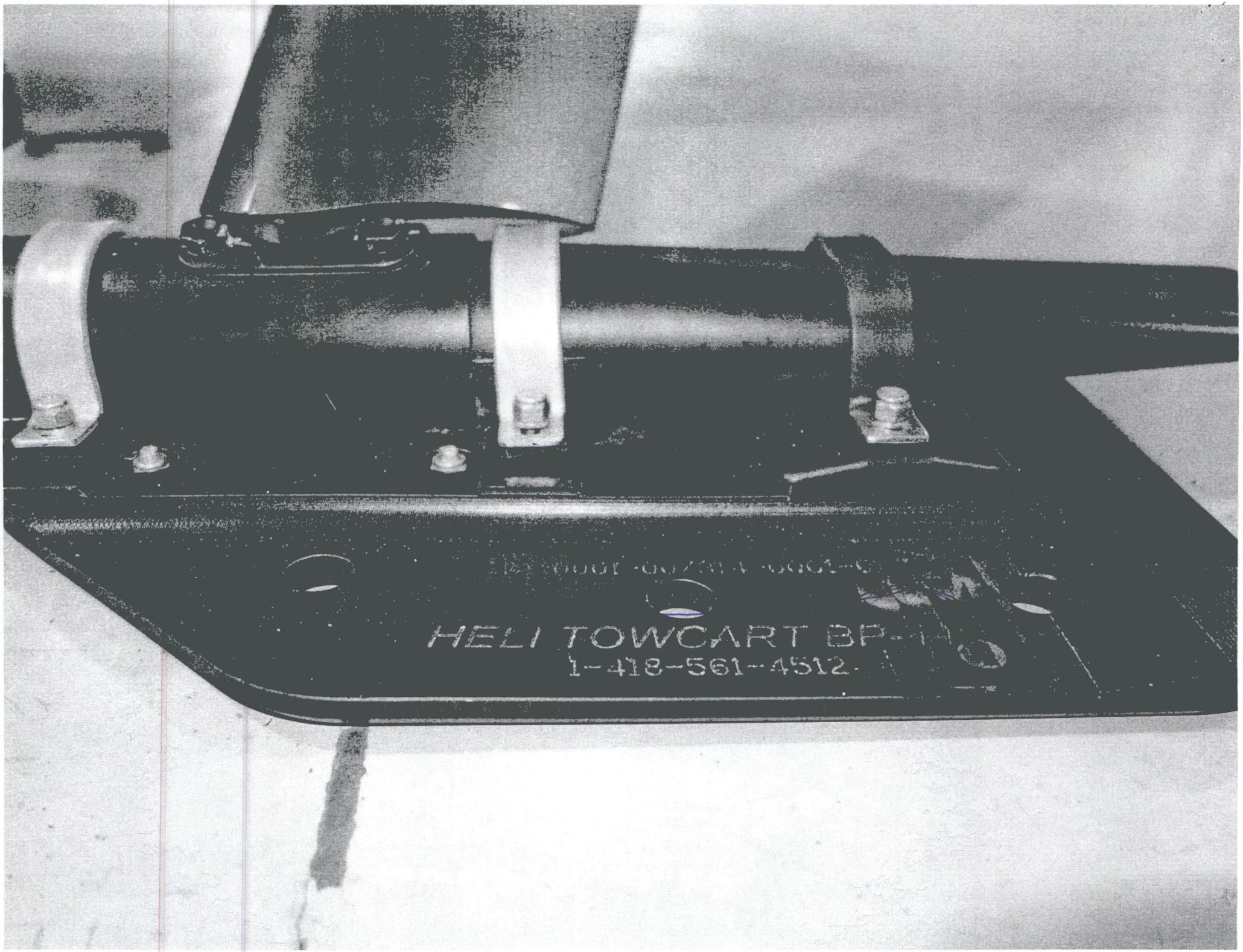

Actuel: Seul point de Contact.
12.5°
7.5°
Actuel
Requis

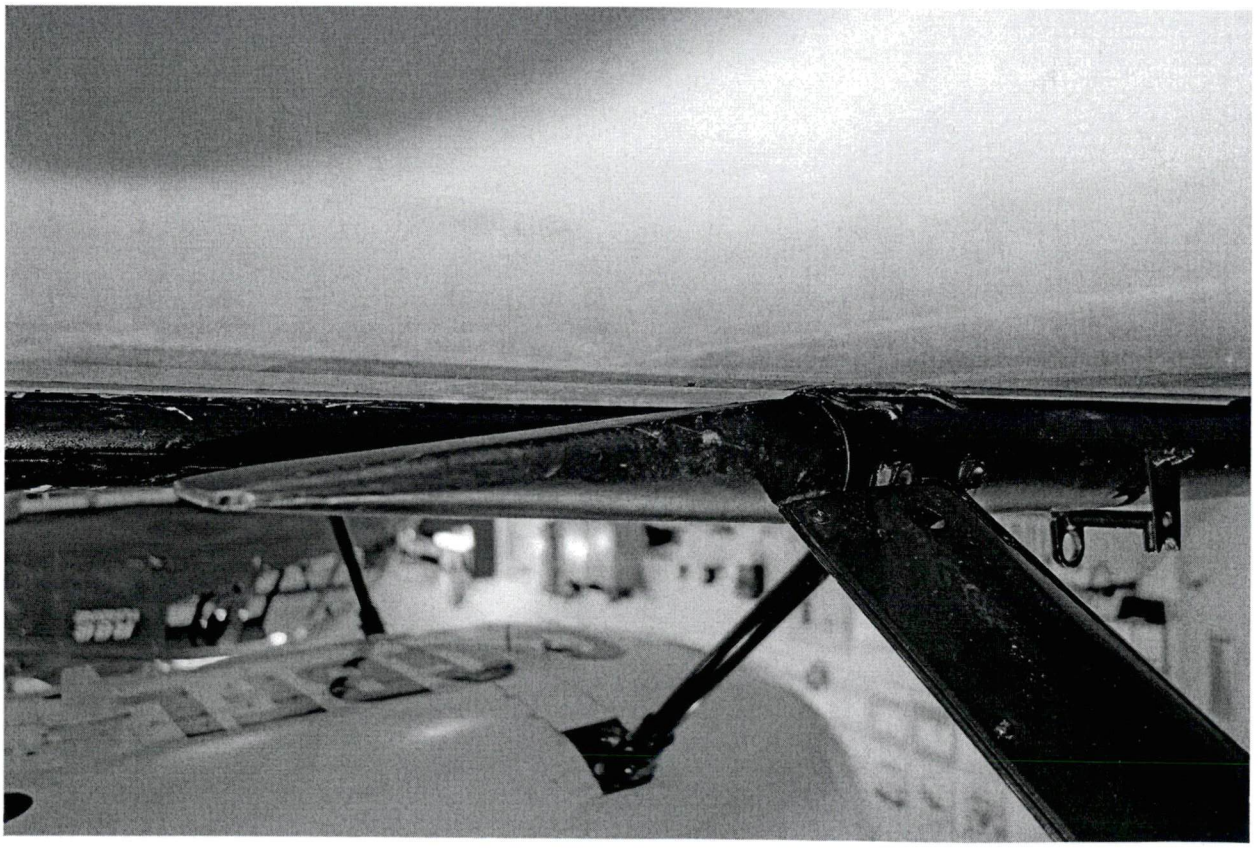

R66
TURBINE








HELI TOWCART BP-
1-418-561-4512



Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: May-30-13 5:54 PM
To: 'Lucien Barbeau'
Cc: 'nbarbeau@helitowcart.com'
Subject: BP44-66
Attachments: Pad_Profile_Correction_Angle_2013_05_30.pdf; Change Slope Project (2013 05 30).pdf; DSC08886A.jpg; DSC08891A.jpg

Dad,
Pour te tenir au courant.
Jacob est allé prendre photos avec hélico de Carol cet pm.
Bonne nouvelle : tout fit 44-66 et photos bonnes.
Moins bonne nouvelle : nos pads n'épousent pas les skids! En effet la pente qu'on a est erronée et Jacob s'est rendu compte que le skid repose sur la ½ de la pointe du bloc arrière! Cela fait beaucoup de pression sur un petit point.
Voir croquis attaché.
Faut donc modifier notre pad autant pour les R44 que R66 pour changer l'angle de machinage afin d'épouser le skid et pas seulement reposer sur un seul point. Voir image ci-jointe.
Selon moi c'est essentiel de modifier nos pads et on doit le faire tant qu'à y être qu'on travail à remettre à jour les doc d'ingé pour le STC.
Donc simplement : on fait approuver nos bp pour faire sur 44 et 66 et en meme temps on fait changer à nouveau le profil.

J'en ai pas parlé à Mirko aujour'hui. Je voulais t'en parler en 1er.
On s'en reparle. Je veux faire commencer Mirko là dessus immédiatement.

Love ya!

Nathalie Barbeau
VP Commercial Affairs

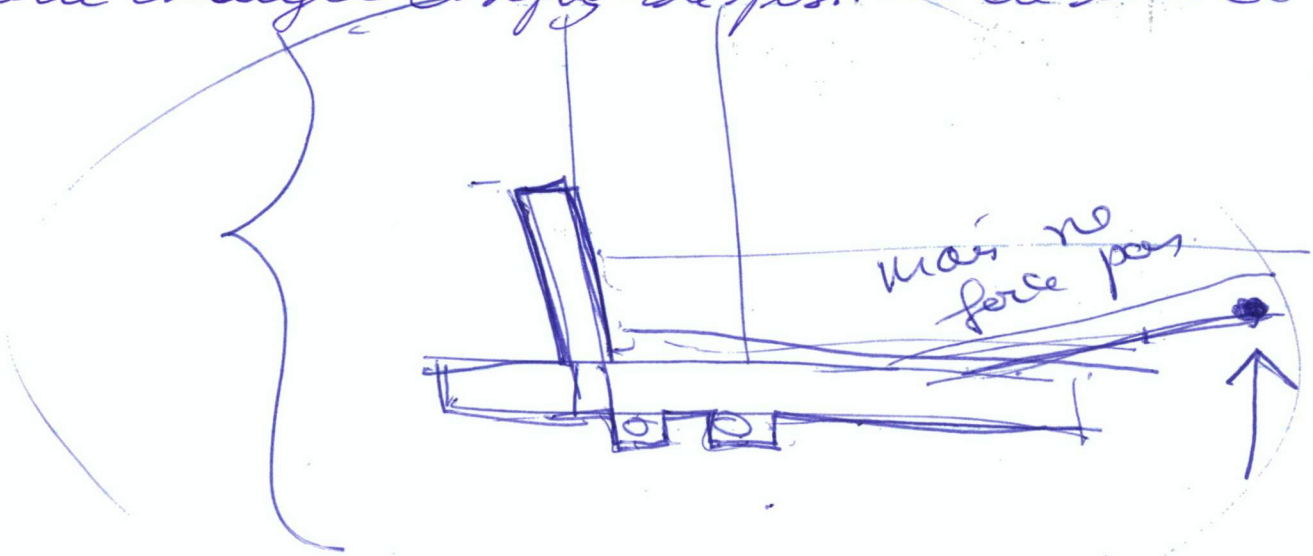
Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

2013 05 30

B44 sur BP66



il a fait tests pour voir si on épousait mieux en déplaçant le pad. Mais a n'est pas mieux
(il a fait ce test sans les vis ressorts dessous.
Note: Comme on veut m'certif que B44 je n'avances pas votre changer config. de position de tous jeux.



Jacob dit: Si on laisse les vis sous le skid et qu'on enlève le shoe, le pad fit très bien et les clip écrivent aux bonnes places.

Toutefois: si il vis est fait, le pad fait la courbe vers en haut car pente n'épouse pas bille.

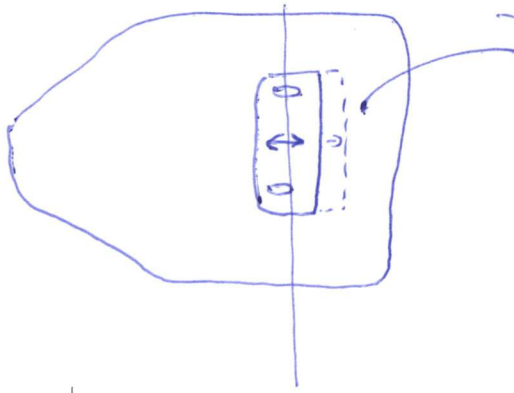
Peut toute seulement au pt le plus haut du bloc de support.

NOTES:

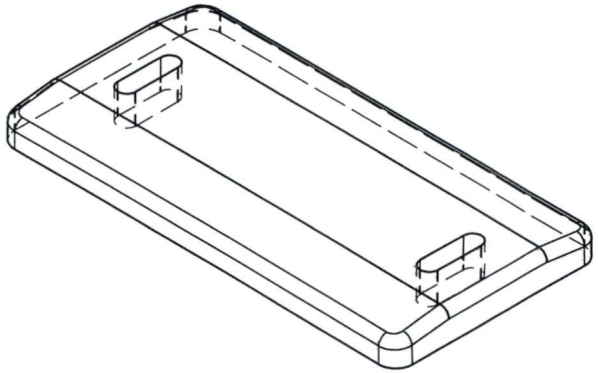
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX. ENSURE EDGES ARE SMOOTH.

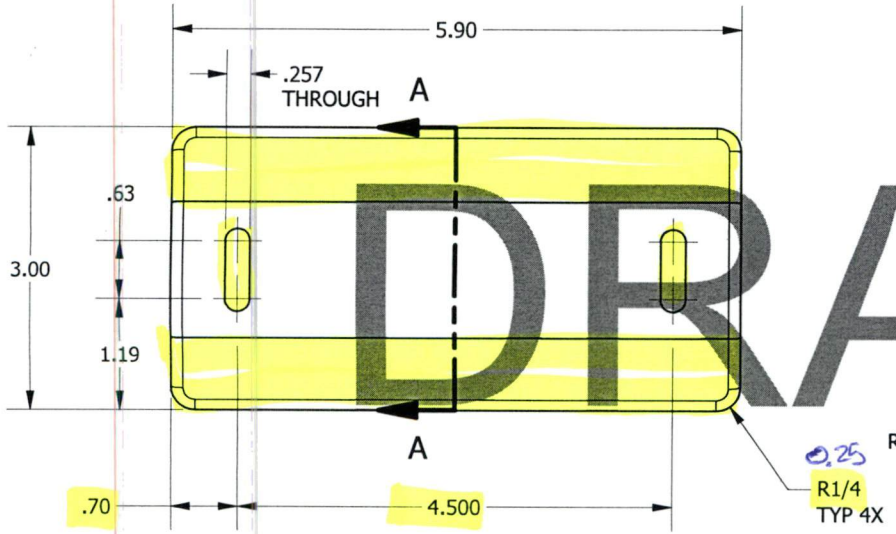
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.



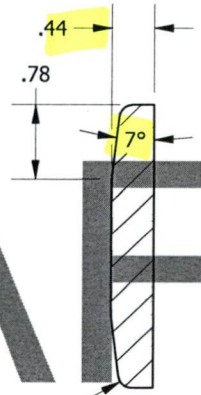
DESIGNED TO BE PUSHED AGAINST SKID THEN LOCKED INTO POSITION. GIVES MORE MARGIN FOR INSTALLER.



ISO
SCALE 1 / 2



TOP
SCALE 1 / 2



SECTION A-A
SCALE 1 / 2

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2009-10-22
B	MODIFICATION OF ANGLE AND ADDITION OF SLOTTED HOLES	R.B.R.	M. ZGELA	2013-08-09

THIS DRAWING IS PROPERTY OF ***HELITOWCART*** AND MAY NOT BE COPIED OR DISTRIBUTED WITHOUT AUTHORIZATION.

DRAFTED BY: S. BERNIER	DATE: 2009-10-22	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW FILLER BLOCK REAR
APPROVED TCCA BY: M. ZGELA	DATE: 2009-10-22	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0022-01 — REV: B
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 1 OF 1

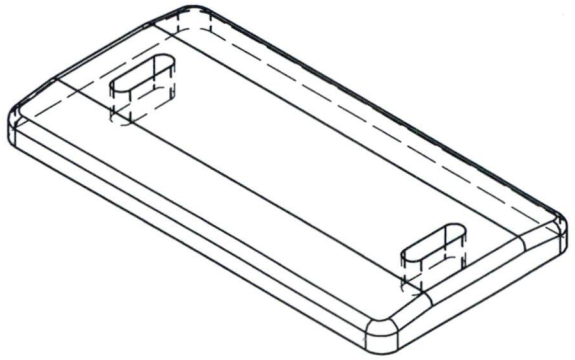
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

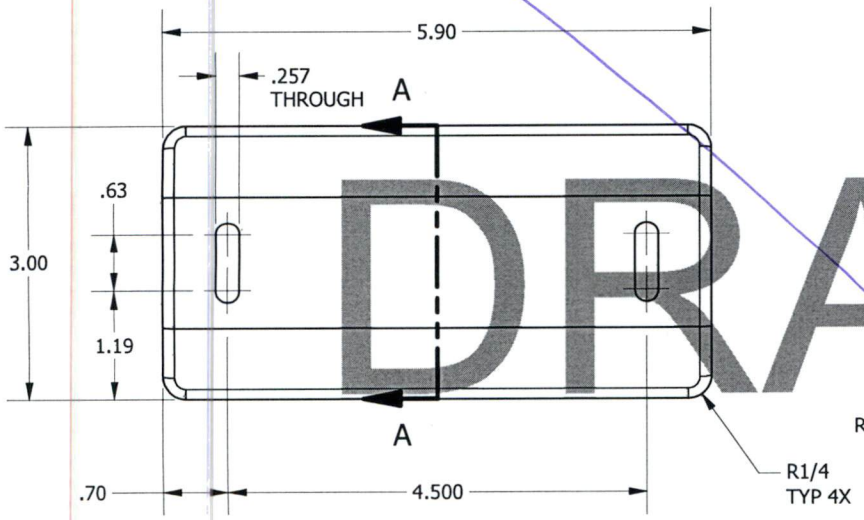
2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX. ENSURE EDGES ARE SMOOTH.

3. ~~BREAK CORNERS 0.050"~~ MIN.

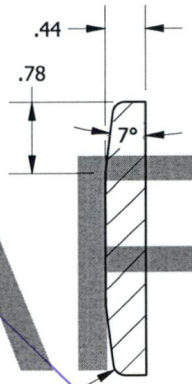
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.



ISO
SCALE 1 / 2



TOP
SCALE 1 / 2



SECTION A-A
SCALE 1 / 2

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2009-10-22
B	MODIFICATION OF ANGLE AND ADDITION OF SLOTTED HOLES	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER	DATE: 2009-10-22
CHECKED BY:	DATE:
APPROVED TCCA BY: M. ZGELA	DATE: 2009-10-22
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A
	SCALE: N/A

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION:
BEARPAW
FILLER BLOCK REAR

DRAWING NUMBER: 314-0022-01

REV: B

SHEET: 1 OF 1

1		314-0022-01-A	1 OF 1

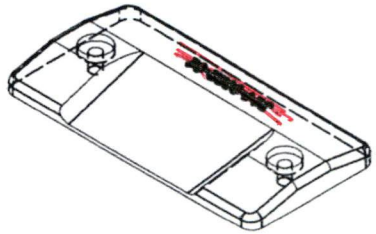
REVISIONS				
1 REWORKABLE 2 NONREWORKABLE 3 VOTED 4 NA			ORG. & DATE	STRESS
ZONE	REV	DESCRIPTION		
	A	ISSUE FOR PRODUCTION		

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994. DIMENSIONS AND TOLERANCING
2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX
3. BREAK CORNERS 0.050" MIN

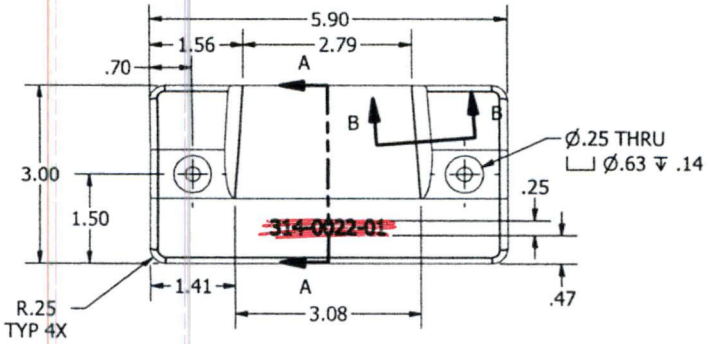
THE SLOPE TO BE CHANGED + SLOTS?



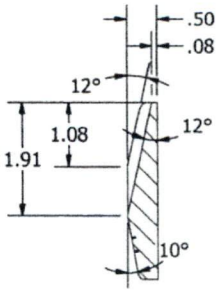
SIDE
SCALE 1 / 2



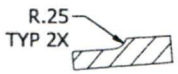
ISO
SCALE 1 / 2



TOP
SCALE 1 / 2



SECTION A-A
SCALE 1 / 2



SECTION B-B
SCALE 1 / 2

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SIZE
1	1	314 0022 01 A	REARPAW FILLER BLOCK REAR	UHMW	1/2

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UNLESS OTHERWISE SPECIFIED
DRAWN: S. BERNIER 2009-10-22
DESIGNED: S. TERNIER 2009-10-22
CHECKED:
STRESS:
WEIGHT:
APPROVED:
APPROVED:
APPROVED: M. ZOLIA 2009-10-22

HELI TOW CART

REARPAW
FILLER BLOCK REAR

SIZE B | DRAWING NO. 314-0022-01-A | REV A

SCALE: NTS | SHEET 1 OF 1

D. Balan
2010.01.06

314-0022-01-A

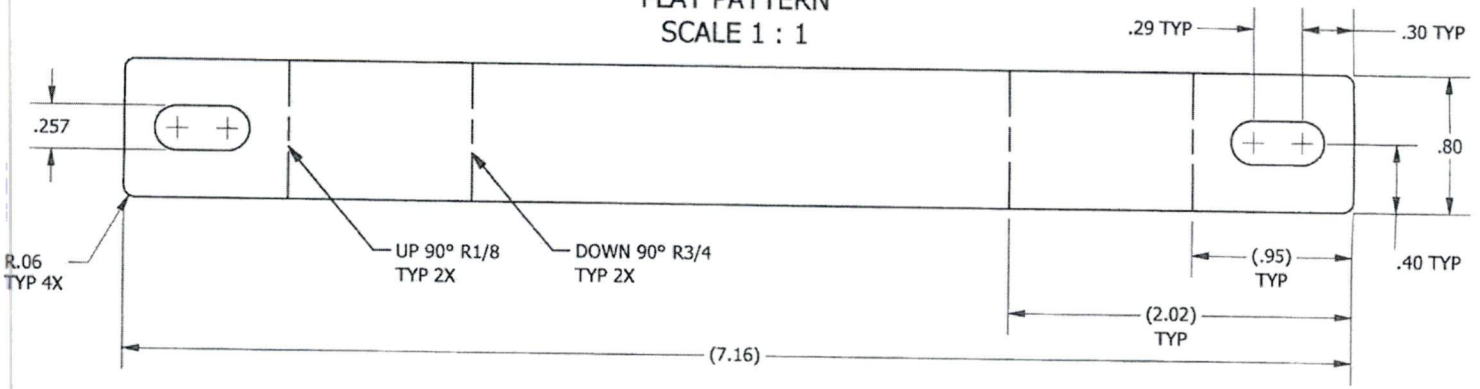
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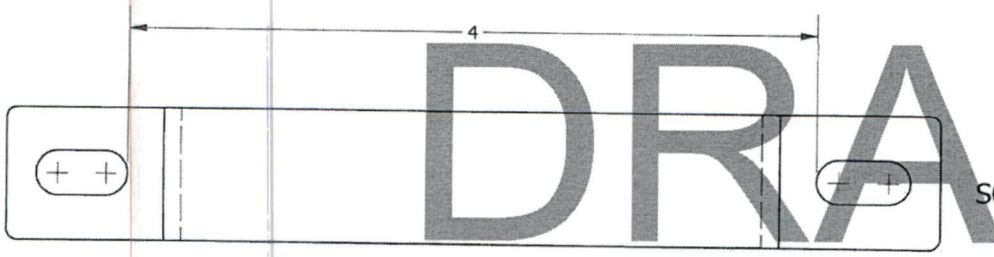
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12

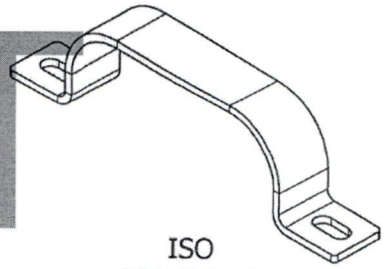
FLAT PATTERN
SCALE 1 : 1



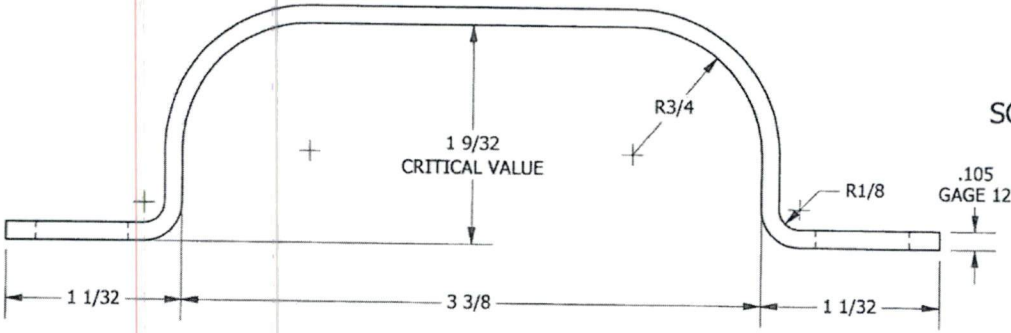


DRAFT

TOP
SCALE 1 : 1



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2010-04-15
B	MODIFIED BEND RADIUS (R3/4) AND REDUCED HEIGHT	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER	DATE: 2010-04-15	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW LOW U-SHAPED CLIP
APPROVED TCCA BY: M. ZGELA	DATE: 2010-04-15	
IF NOT SPECIFIED GENERAL TOLERANCE 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	UNITS: INCH SIZE: A SCALE: N/A	DRAWING NUMBER: 314-0023-15 REV: B SHEET: 1 OF 1

T.g. soumis à T.C.

NOTES:

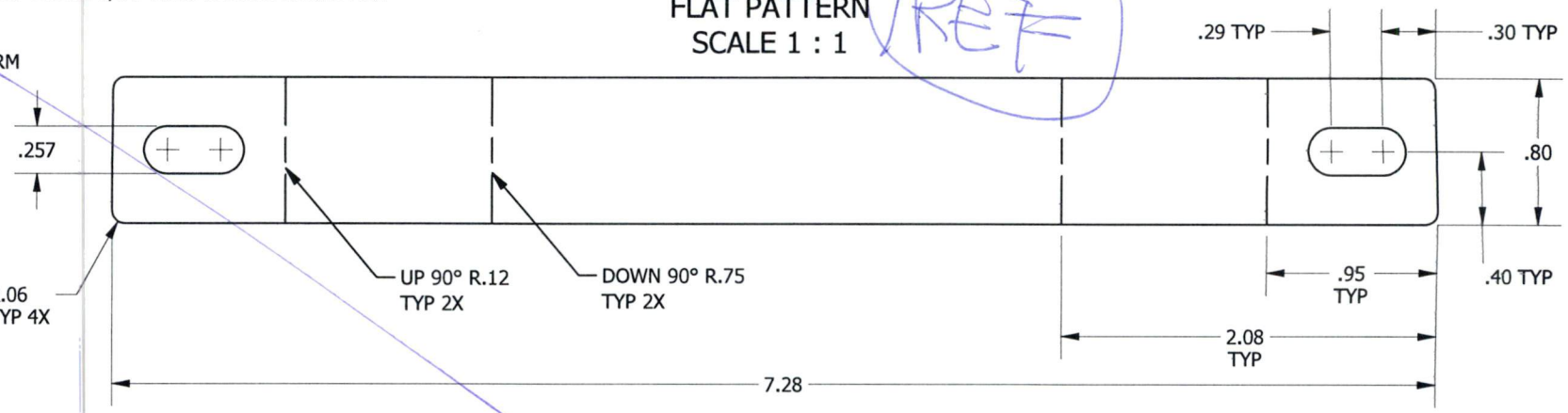
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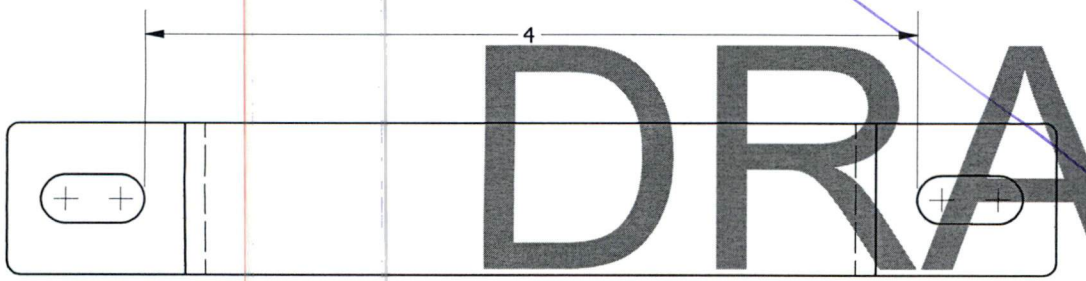
2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

3. FILL CLIENT INSPECTION FORM

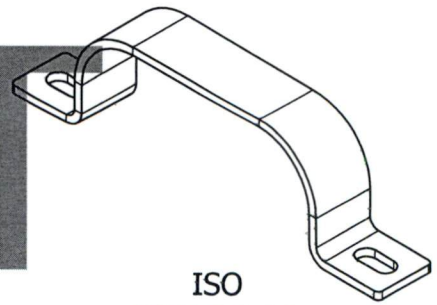
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12

FLAT PATTERN
SCALE 1 : 1

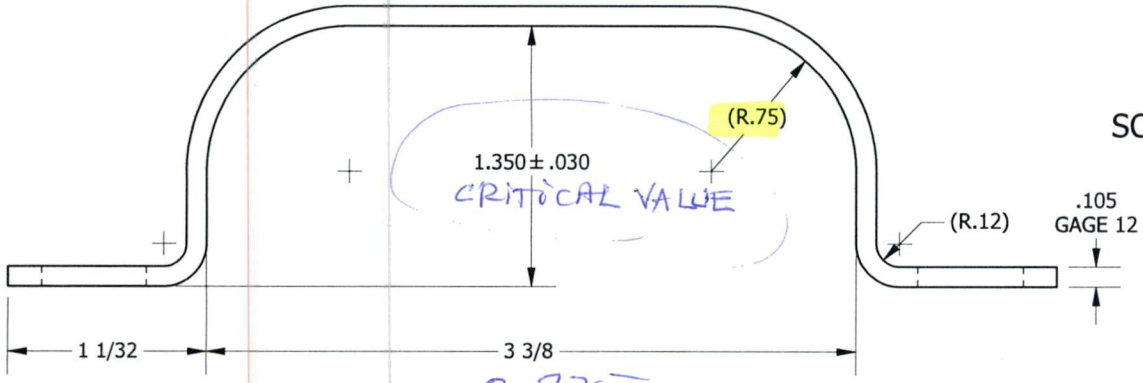




TOP
SCALE 1 : 1



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

SUPPLIER NOTE:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE

DRAFT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2010-04-15
B	MODIFIED BEND RADIUS (0.75) AND REDUCED HEIGHT (1.400)	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER	DATE: 2010-04-15	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2010-04-15	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE A	
	SCALE: N/A	

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION:
BEARPAW
LOW U-SHAPED CLIP

DRAWING NUMBER: 314-0023-15

REV: B

SHEET: 1 OF 1

NOTES:

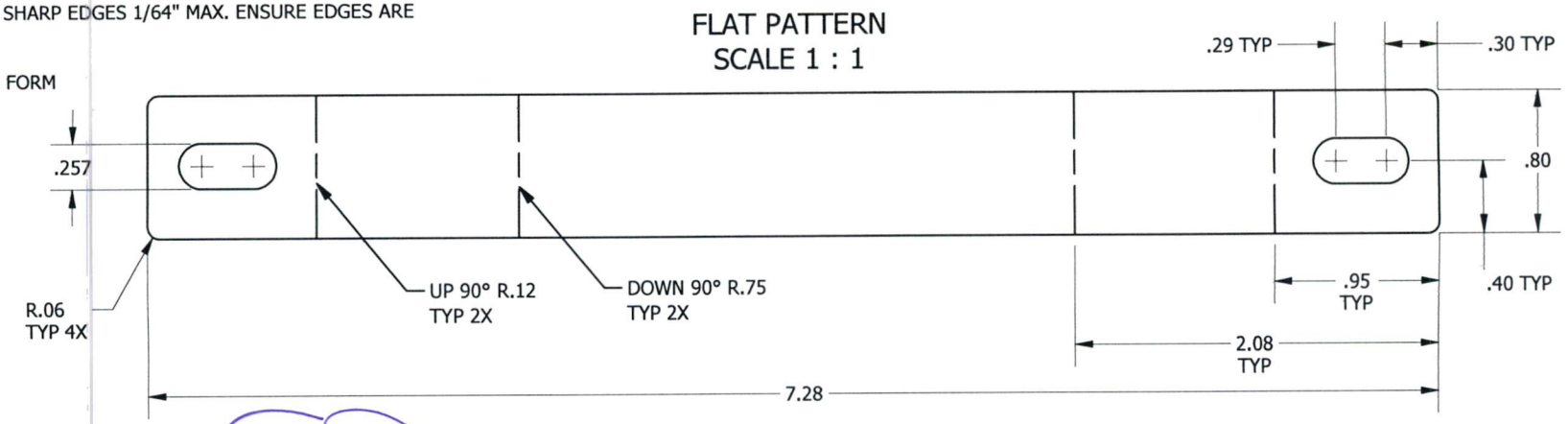
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

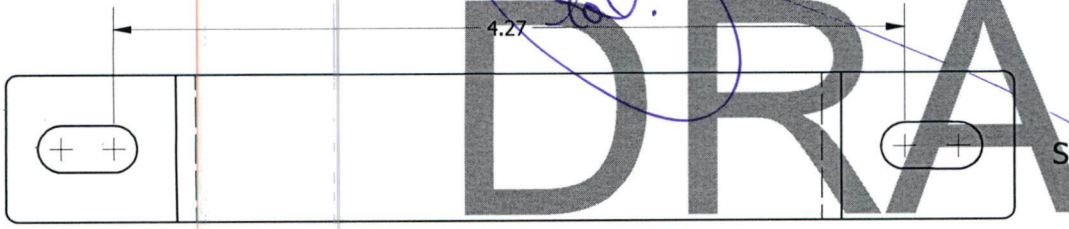
3. FILL CLIENT INSPECTION FORM

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0023-15	BEARPAW - LOW U SHAPED CLIP	SS304	ANNEALED	GAGE 12

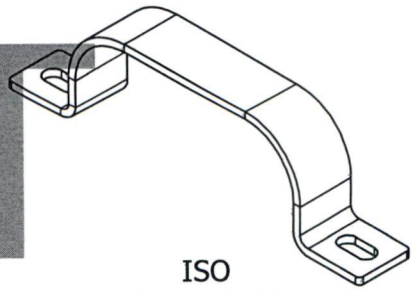
FLAT PATTERN
SCALE 1 : 1



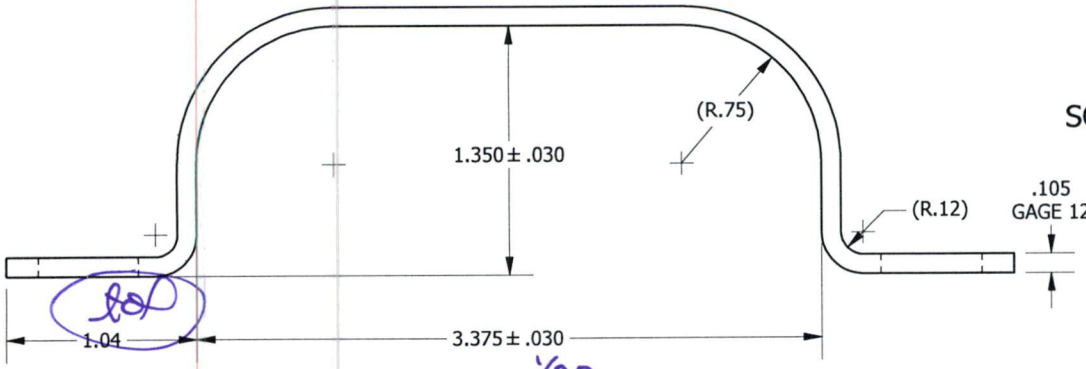
DRAFT



TOP
SCALE 1 : 1



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2010-04-15
B	MODIFIED BEND RADIUS (0.75) AND REDUCED HEIGHT (1.400)	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER	DATE: 2010-04-15	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2010-04-15	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	

Helitowcart (Vanair inc.)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

DEFINITION:
BEARPAW
U-SHAPED CLIP REAR

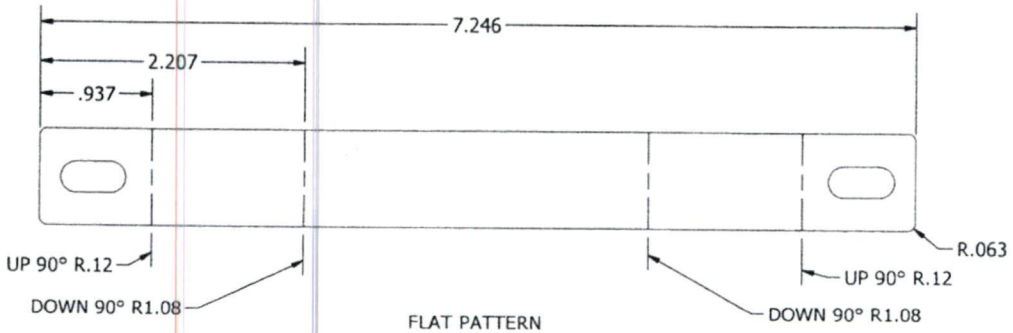
DRAWING NUMBER: 314-0023-15

REV: B

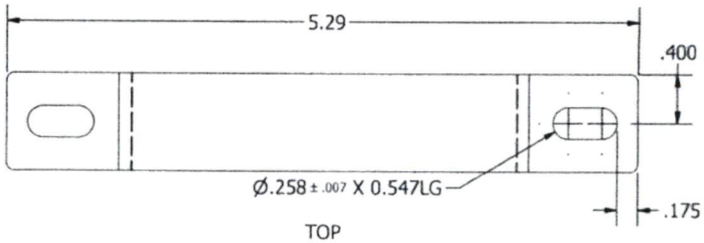
SHEET: 1 OF 1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994. DIMENSIONS AND TOLERANCING
2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX
3. FILL CLIENT INSPECTION FORM

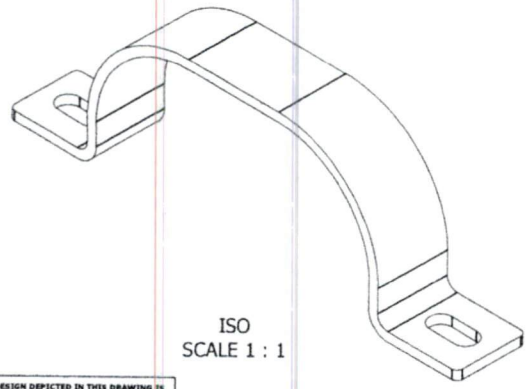
REVISIONS				
1 REWORKABLE 2 NONREWORKABLE 3 NOTED 4 NA			DR. & DATE	STRESS
ZONE	REV	DESCRIPTION		
	A	ISSUE FOR PRODUCTION		



FLAT PATTERN
SCALE 1 : 1



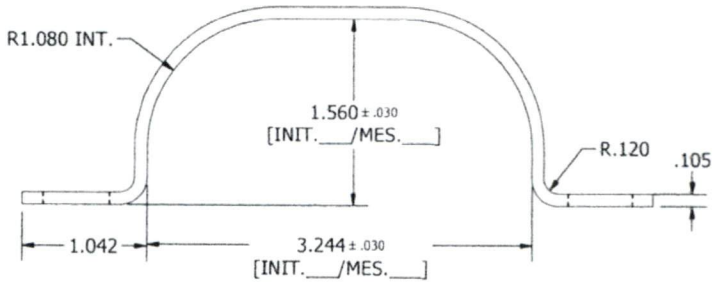
TOP
SCALE 1 : 1



ISO
SCALE 1 : 1



LEFT
SCALE 1 : 1



FRONT
SCALE 1 : 1

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ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SIZE
1	1	314-0023-15-A	BEARPAW LOW U SHAPED CLIP REAR	STEEL	0.105

DRAWN	
DESIGNED	
CHECKED	
QA	
APPROVED	
APPROVED	
APPROVED MFG	

HELI TOW CART

BEARPAW
LOW U SHAPED CLIP

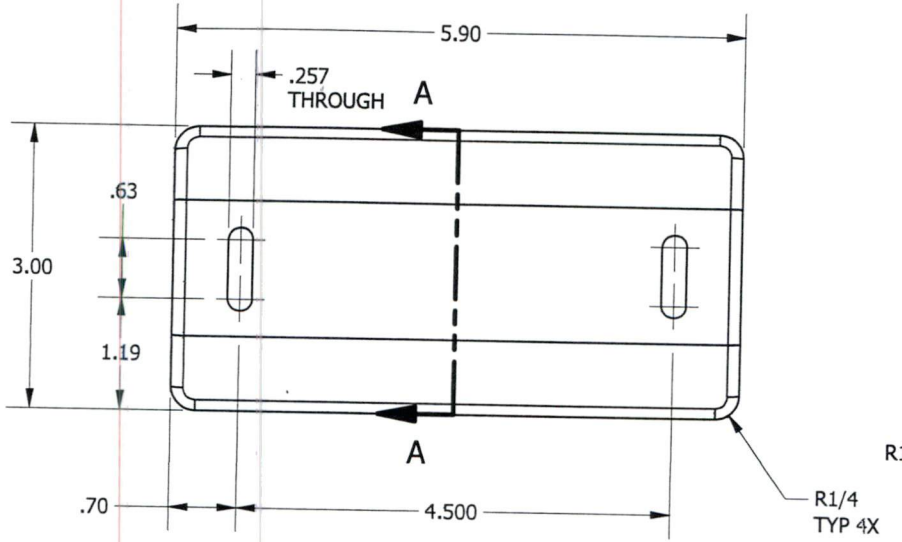
SIZE B | DRAWING NO. 314-0023-15 | REV A3

SHEET 1 OF 1

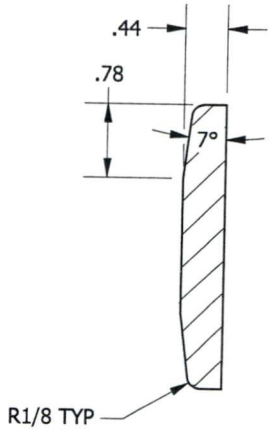
			DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0022-01	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2" THK.

1. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994, DIMENSIONS AND TOLERANCING.

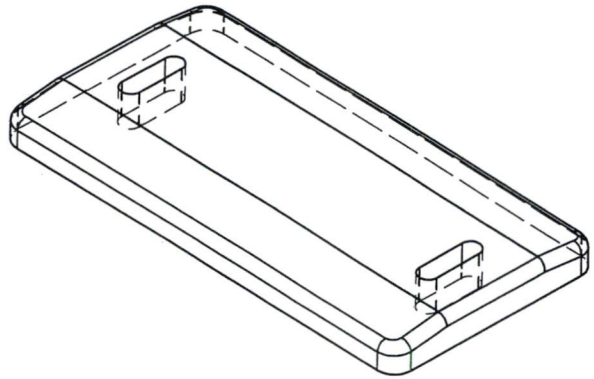
2. REMOVE ALL BURRS AND SHARP EDGES 0.020" MAX. ENSURE EDGES ARE SMOOTH.



TOP
SCALE 1 / 2



SECTION A-A
SCALE 1 / 2



ISO
SCALE 1 / 2

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2009-10-22
B	MODIFICATION OF ANGLE AND ADDITION OF SLOTTED HOLES	R.B.R.	M. ZGELA	2013-08-09

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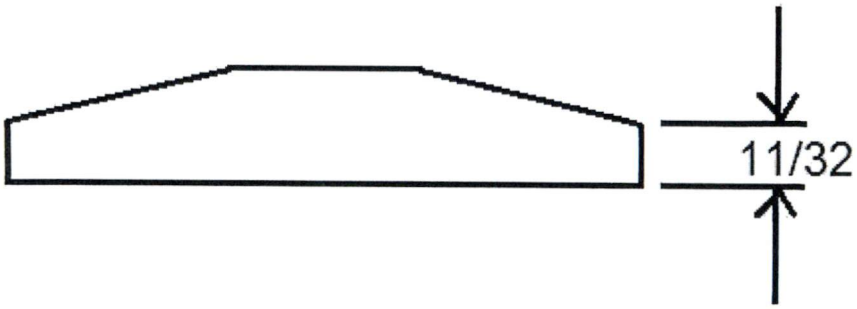
DRAFTED BY: S. BERNIER	DATE: 2009-10-22	**Helitowcart** (Vanair inc.) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
CHECKED BY:	DATE:	DEFINITION: BEARPAW FILLER BLOCK REAR
APPROVED TCCA BY: M. ZGELA	DATE: 2009-10-22	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0022-01 REV: B
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 1 OF 1

Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: August-28-13 4:50 PM
To: Nathalie Barbeau
Subject: Rear filler block
Attachments: 314-0022-01.pdf; 314-0022-01.stp

Bonjour Nathalie,

Voir les documents en pièce jointe. La hauteur du côté est de 11/32".



Renaud Berthelot-Richer, ing. jr.
CONCEPTION STRUCTURE AÉRONAUTIQUE
AÉRONAUTICAL STRUCTURE DESIGN
T: 819.601.8049 #211
renaudb@ats-ast.com

Aviatech
SERVICES TECHNIQUES INC
TECHNICAL SERVICES LTD
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Trois-Rivières, Qc, Canada
G9A 4G1
F: 819.377.7928
www.ats-ast.com

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COMMUNICATIONS

Aviatech
SERVICES TECHNIQUES inc.

Trois-Rivières, 27 novembre, 2013

Projet: A2007-09

Nathalie Barbeau
VP Commercial Affairs
Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Québec, Canada
G7A 5K6

Objet: STC SH06-24 Issue #4 - Installation of Helitowcart BearPaw

Madame,

Vous trouverez ci-joint la documentation pour la version 4 du certificat SH06-24 selon votre PO # nb-130702-01. Veuillez détruire le DVD que vous reçu avec la lettre datée du 8 novembre 2013.

En espérant le tout à votre entière satisfaction,

Sincèrement,

Jean-François Lemire, ing.
Directeur d'ingénierie

Aviatech Services Techniques Inc.
2595, rue St-Olivier
Trois-Rivières, Québec, G9A 4G1
Tel: (819) 601-8049 Fax: (819) 377-7928
Courriel: info@ats-ast.com
Site internet: www.ats-ast.com

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: November-13-13 4:38 PM
To: 'Jean-Francois Lemire'
Cc: 'Lucien Barbeau'
Subject: RE: STC SH06-24 Issue #4

Jean-François,

1. Approbations mineures : Si c'est Mirko qui met sa tuque de représentant de TC pour m'approuver des modifs mineures, c'est correct pour moi, mais alors c'est quoi le critère pour que la mise à jour soit considérée mineure? Et alors vous occupez-vous d'informer TC? En fait, comment je fais pour savoir que la boucle est étanche et que j'aurai pas une surprise un jour que TC voulait être au courant mais ne l'a pas été? Je veux être en mesure de clairement savoir dans quels cas je dois obtenir une trace que TC a vu. Svp donne moi votre règle du pouce pour que j'apprenne et que je puisse bien suivre mes dossiers. Je veux être en mesure de débattre TC en audit si jamais ils me challengent.

2. Accès aux fichiers originaux : Je suis renversée que ce soit si compliqué de me donner les originaux que j'ai acheté. En tant que cliente cela me donne l'impression que je me fais fourrer. Mets toi à ma place...J'ai payé plus de 10 000$ pour ces travaux et donc je désire obtenir ce que j'ai acheté.... pas seulement une carte postale du résultat final. T'inquiète pas, je n'ai pas les logiciels pour les utiliser et j'ai pas l'intention de modifier quoi que ce soit. C'est juste que pour la valeur de mon entreprise, quand j'investis dans des services d'ingénierie je veux obtenir ce que j'ai acheté- et pas me faire prendre en otage. C'est une question de principe. Je veux aussi mettre en sureté toute notre ingénierie et donc je veux que ces infos soient sur mon serveur. Donc Jean-François...j'ai besoin de :
    a) Tous les originaux des desssins que vous nous avez refaits sur de nouvelles cartouches.
    b) Les originaux Word du MDL et de l'instruction d'installation 314-0011-00 Rev E; et
    c) Le pdf de AAC-CPL-BP-R44-1000, rev A
    d) Le pdf de ATS-0709-FTP-1000, rev NC
    e) Le pdf de ATS-0709-TM-1000, rev NC analyse de structure

Jean-François, j'aime beaucoup travailler avec vous et je me sens très en confiance avec vous. J'ai un immense respect pour toi, Renaud et bien entendu j'adore Mirko. Soyez assurés que je veux travailler avec vous dans la confiance et que je ne remet pas en doute votre travail. J'ai juste besoin de gérer ma business aussi ... et d'assurer la sureté de notre ingénierie pour le long terme. Mon chum vit une méga poursuite en ce moment et je deviens très sensible à prévoir l'avenir, meme si c'est pour dans 10 ans.

J'attends de tes nouvelles,

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com

info@helitowcart.com
www.helitowcart.com

From: Jean-Francois Lemire [mailto:jeanfrancoisl@ats-ast.com]
Sent: November-13-13 2:15 PM
To: nbarbeau@helitowcart.com
Subject: STC SH06-24 Issue #4

Nathalie,

1) Je suis désolé pour cette erreur sur le MDL du AS350, par contre la mention "or later Transport canada approved revision" fait en sorte que le document HTC-MDL-BP-AS350/355-1000 Rev G est le dernier document approuvé.

2) *(extrait courriel)*

> Est-ce la signature de Mirko qui fait foie de TC en tant que DAR?

Oui, lors de modifications mineures ne demandant pas d'ajustement au certificat.

3) Document de certification:

Les documents mentionnés dans votre courriel n'ont jamais été envoyé à aucun de nos clients. Ces documents mentionnent nos façon de faire en certification, test en vol et analyse de structure. Par contre, la MDL signé fait office de preuve que ces documents existent. De, plus nous devons transmettre tous ces documents à TC, alors ils ont une copie de tout.

(extrait courriel)

> Allo Jean-François,
> J'ai fait le tour de ma nouvelle MDL rev. D pour m'assurer que j'ai tout ce qu'il faut et je constate que j
> nouvelles versions des documents suivants. Svp me confirmer si je dois les recevoir? Si non, m'émettr
> Aviatech qui confirme que ces documents ont réellement été faits et qu'ils sont conservés entre vos m
> consultation par TC/FAA si néc?
>
> 1) AAC-CPL-BP-R44-1000 REV A, Aug 28, 2013
> 2) ATS-0709-FTP-1000 REV NC, Aug 27, 2013
> 3) ATS-0709-TM-1000 REV NC, Aug 9, 2013

Bonne journée.

Jean-François Lemire, ing.
DIRECTEUR D'INGÉNIERIE
ENGINEERING DIRECTOR
T: 819.601.8049 #203
jeanfrancoisl@ats-ast.com

Aviatech
SERVICES TECHNIQUES INC.
TECHNICAL SERVICES INC.

2595 St-Olivier
Trois-Rivières, Qc, Canada
G9A 4G1

F: 819.377.7928
www.ats-ast.com

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Studies have shown trees live longer when they're not cut down.
Avant d'imprimer, pensez à l'environnement.

De : Nathalie Barbeau [mailto:1nbarbeau@gmail.com]
Envoyé : 12 novembre 2013 14:43
À : Jean-Francois Lemire
Objet : Erreur dans le STC (encore)?

Jean-François,
Je note que le document que tu m'as fourni, intitulé « Statement of Conformity with Certification Basis », Q-SH06-24 fait la liste des MDL les plus récentes. Hors pour le AS350 les versions sur ton document et sur le STC ne matchent pas.
Le STC semble ne pas avoir été modifié correctement.
La version que j'ai reçu est-elle avant correction?

J'espérais avoir enfin éliminé toutes les erreurs de nos documents mais si on doit vivre avec c'est ok pour moi si la suite du texte « or later Transport canada approved revision », fait en sorte que nous sommes conformes par la bande.

Ceci m'amène à te poser la question suivante : Quand c'est écrit « or later Transport canada approved revision » comment je fais pour savoir si TC a réellement approuvé? Est-ce la signature de Mirko qui fait foie de TC en tant que DAR?
Je te pose la question car je ne sais pas comment je répondrais à un auditeur justement dans le cas mentionné ci-haut car ma version de MDL est effectivement plus récente que celle mentionnée and le STC que je viens de recevoir.

J'attends de tes nouvelles pour m'éclairer!

Nathalie Barbeau

From: Jean-Francois Lemire [jeanfrancoisl@ats-ast.com]
Sent: November-13-13 2:15 PM
To: nbarbeau@helitowcart.com
Subject: STC SH06-24 Issue #4

Nathalie,

1) Je suis désolé pour cette erreur sur le MDL du AS350, par contre la mention "or later Transport canada approved revision" fait en sorte que le document HTC-MDL-BP-AS350/355-1000 Rev G est le dernier document approuvé.

2) *(extrait courriel)*

> Est-ce la signature de Mirko qui fait foie de TC en tant que DAR?

Oui, lors de modifications mineures ne demandant pas d'ajustement au certificat.

Comment je fais pour savoir si c'est "mineur"?

3) Document de certification:

Les documents mentionnés dans votre courriel n'ont jamais été envoyé à aucun de nos clients. Ces documents mentionnent nos façon de faire en certification, test en vol et analyse de structure. Par contre, la MDL signé fait office de preuve que ces documents existent. De, plus nous devons transmettre tous ces documents à TC, alors ils ont une copie de tout.

(extrait courriel)

> Allo Jean-François,
> J'ai fait le tour de ma nouvelle MDL rev. D pour m'assurer que j'ai tout ce qu'il faut et je constate que j
> nouvelles versions des documents suivants. Svp me confirmer si je dois les recevoir? Si non, m'émettr
> Aviatech qui confirme que ces documents ont réellement été faits et qu'ils sont conservés entre vos m
> consultation par TC/FAA si néc?
>
> 1) AAC-CPL-BP-R44-1000 REV A, Aug 28, 2013
> 2) ATS-0709-FTP-1000 REV NC, Aug 27, 2013
> 3) ATS-0709-TM-1000 REV NC, Aug 9, 2013

J'ai ces documents

J'ai payé

Bonne journée.

Jean-François Lemire, ing.
DIRECTEUR D'INGÉNIERIE
ENGINEERING DIRECTOR
T: 819.601.8049 #203
jeanfrancoisl@ats-ast.com

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De : Nathalie Barbeau [mailto:1nbarbeau@gmail.com]
Envoyé : 12 novembre 2013 14:43
À : Jean-Francois Lemire
Objet : Erreur dans le STC (encore)?

Jean-François,
Je note que le document que tu m'as fourni, intitulé « Statement of Conformity with Certification Basis », Q-SH06-24 fait la liste des MDL les plus récentes. Hors pour le AS350 les versions sur ton document et sur le STC ne matchent pas.
Le STC semble ne pas avoir été modifié correctement.
La version que j'ai reçu est-elle avant correction?

J'espérais avoir enfin éliminé toutes les erreurs de nos documents mais si on doit vivre avec c'est ok pour moi si la suite du texte « or later Transport canada approved revision », fait en sorte que nous sommes conformes par la bande.

Ceci m'amène à te poser la question suivante : Quand c'est écrit « or later Transport canada approved revision » comment je fais pour savoir si TC a réellement approuvé? Est-ce la signature de Mirko qui fait foie de TC en tant que DAR?
Je te pose la question car je ne sais pas comment je répondrais à un auditeur justement dans le cas mentionné ci-haut car ma version de MDL est effectivement plus récente que celle mentionnée and le STC que je viens de recevoir.

J'attends de tes nouvelles pour m'éclairer!

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: November-11-13 11:07 AM
To: 'Jean-Francois Lemire'
Subject: CD des documents de bearpaws

Allo Jean-Francois,
Merci de m'avoir fait parvenir par Dicom le CD des documents.
Très apprécié d'avoir le colis sur mon bureau dès mon arrivée ce matin.

Je suis à lancer des impressions et classer les documents et je réalise qu'il n'y a pas les originaux sur le CD, il n'y a que les pdf.
Svp me faire un CD des originaux de tous les documents; particulièrement les dessins. Je veux les mettre en sureté dans notre serveur.
J'ai pas l'Intention de les utiliser mais faut que je les aies – Transport Canada m'ont déjà soulevé en audit que je n'avais pas accès à mes originaux et qu'il fallait que je les aille.

Merci Jean-François,

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
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nbarbeau@helitowcart.com
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www.helitowcart.com

+ les word
+ les CPL
FTP
TM

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: November-12-13 2:37 PM
To: 'Jean-Francois Lemire'
Cc: 'nbarbeau@helitowcart.com'
Subject: Erreur dans STC (encore)?

Jean-François,
Je note que le document que tu m'as fourni, intitulé « Statement of Conformity with Certification Basis », Q-SH06-24 fait la liste des MDL les plus récentes. Hors pour le AS350 les versions sur ton document et sur le STC ne matchent pas.
Le STC semble ne pas avoir été modifié correctement.
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Ceci m'amène à te poser la question suivante : Quand c'est écrit « or later Transport canada approved revision » comment je fais pour savoir si TC a réellement approuvé? Est-ce la signature de Mirko qui fait foie de TC en tant que DAR?
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J'attends de tes nouvelles pour m'éclairer!

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
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F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: November-12-13 2:41 PM
To: 'Jean-Francois Lemire'
Cc: 'nbarbeau@helitowcart.com'
Subject: Svp me confirmer/transmettre CPL + FTP+ TM vs BP44 pour R66?

Allo Jean-François,
J'ai fait le tour de ma nouvelle MDL rev. D pour m'assurer que j'ai tout ce qu'il faut et je constate que je n'ai pas vu les nouvelles versions des documents suivants. Svp me confirmer si je dois les recevoir? Si non, m'émettre un document de Aviatech qui confirme que ces documents ont réellement été faits et qu'ils sont conservés entre vos mains pour consultation par TC/FAA si néc?

1) AAC-CPL-BP-R44-1000 REV A, Aug 28, 2013
2) ATS-0709-FTP-1000 REV NC, Aug 27, 2013
3) ATS-0709-TM-1000 REV NC, Aug 9, 2013

Merci,

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
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Quebec, Canada, G7A 5K6
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info@helitowcart.com
www.helitowcart.com

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: November-13-13 5:05 PM
To: 'Jean-Francois Lemire'
Subject: À vérifier vs les dessins fournis de bP350
Attachments: 112-0002-00-S Rev D (BP350 Streamline Assembly).pdf

J-F,
Tu as joint des dessins de BP350 et BP130 sur le CD.

J'ai remarqué que pour le 112-0002-00-S tu m'as transmis la version C, alors qu'on est rendus à la version D selon mes données dans mon serveur. Svp checker. J'ai joint le fichier que j'avais en main.

Merci

Nathalie Barbeau
VP Commercial Affairs

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info@helitowcart.com
www.helitowcart.com

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: October-17-13 4:19 PM
To: 'Renaud Berthelot-Richer'
Subject: Installation sur BP44 déjà sur le terrain / confirmer que le EO signé nous sera fourni

Renaud,
Ci-bas un échange entre nous du 25 juillet dernier.
Svp s'assurer que vous m'envoyez aussi le EO signé qui nous autorise à installer les batches déjà sur le terrain sur le R66.
Je compte envoyer une lettre avec en attachement le STC pour R66 et le EO. Je me demande ce qui suit :

Je ne suis pas certaine que je devrais leur fournir aussi la nouvelle version d'instruction d'installation 314-0011-00 rev. E car on mentionne un autre weight & balance que ce qu'ils avaient et une autre liste de pièces que ce qu'ils ont en main. Il me semble qu'ils devraient conserver leur ancienne version qui match exactement ce qu'ils ont comme composition (ie liste des pièces sur le dessin en annexe 112-0001-00 de rev E à F?
Qu'en penses-tu?

Merci

Nathalie Barbeau
VP Commercial Affairs

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www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-25-13 10:14 AM
To: Nathalie Barbeau
Cc: Jean-Francois Lemire
Subject: RE: Mesure des jeux dans les clips

Bonjour Nathalie,

J'ai discuté à nouveau avec Jean-François ce matin. Finalement, ajouter une note dans les instructions d'installation était une passe-passe légale, mais n'était pas approprié pour vos clients qui auraient reçu des instructions d'installation non-applicables. De ce fait, nous allons créer un nouveau document (EO : Engineering Order) dans lequel nous expliquerons que les anciennes versions du Bear Paw peuvent être installées sur les R66 puisque tous les BP44 sont équivalents. Ce document sera officiel et approuvé par Transport Canada. Vous pourrez alors envoyer à vos clients :

- Une copie de la nouvelle « Issue » du STC (dans lequel le R66 est ajouté)
- Le Engineering Order qui leur donne l'autorisation d'effectuer l'installation sur le R66

Renaud

Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: July-25-13 10:14 AM
To: Nathalie Barbeau
Cc: Jean-Francois Lemire
Subject: RE: Mesure des jeux dans les clips

Categories: Cat 1 - Needs important Action

Bonjour Nathalie,

J'ai discuté à nouveau avec Jean-François ce matin. Finalement, ajouter une note dans les instructions d'installation était une passe-passe légale, mais n'était pas approprié pour vos clients qui auraient reçu des instructions d'installation non-applicables. De ce fait, nous allons créer un nouveau document (EO : Engineering Order) dans lequel nous expliquerons que les anciennes versions du Bear Paw peuvent être installées sur les R66 puisque tous les BP44 sont équivalents. Ce document sera officiel et approuvé par Transport Canada. Vous pourrez alors envoyer à vos clients :

1 - Une copie de la nouvelle « Issue » du STC (dans lequel le R66 est ajouté)
2 - Le Engineering Order qui leur donne l'autorisation d'effectuer l'installation sur le R66

Renaud

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 2013/07/24 11:45
À : Renaud Berthelot-Richer
Objet : RE: Mesure des jeux dans les clips

Renaud,
Je t'appelle en début de pm et on fait le tour et on règle tous les détails qui te retardent.

Nathalie Barbeau
VP Commercial Affairs

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info@helitowcart.com
www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-24-13 11:34 AM
To: Nathalie Barbeau
Subject: RE: Mesure des jeux dans les clips

Bonjour Nathalie,

Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: July-24-13 4:45 PM
To: Nathalie Barbeau
Subject: Installation sur les R66

Bonjour Nathalie,

J'ai parlé avec J-F. Tel que nous avions discuté, vos clients pourront installer les anciennes versions du BearPaw sur les R66 puisqu'on ne fait pas de distinction entre les différentes versions du Bearpaw. Il serait cependant utile de leur fournir :

- Les nouvelles instructions d'installation.
- Une copie de la nouvelle « Issue » du STC qui mentionne le R66 parmis les hélicoptères sur lesquels le bearpaw peut être installé.

Je vais faire un ajout dans les instructions d'installation qui mentionne que les anciennes versions peuvent être installées sur les R66 selon la nouvelle « Issue » du STC, histoire que ça se retrouve dans un document officiel certifié par Transport Canada.

Renaud

De : Renaud Berthelot-Richer
Envoyé : 2013/07/24 14:52
À : 'Nathalie Barbeau'
Objet : RE: Mesure des jeux dans les clips

De : Renaud Berthelot-Richer
Envoyé : 2013/07/24 14:32
À : 'Nathalie Barbeau'
Objet : RE: Mesure des jeux dans les clips

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 2013/07/24 11:45
À : Renaud Berthelot-Richer
Objet : RE: Mesure des jeux dans les clips

Renaud,
Je t'appelle en début de pm et on fait le tour et on règle tous les détails qui te retardent.

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 2013/07/24 11:45
À : Renaud Berthelot-Richer
Objet : RE: Mesure des jeux dans les clips

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info@helitowcart.com
www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-24-13 11:34 AM
To: Nathalie Barbeau
Subject: RE: Mesure des jeux dans les clips

Bonjour Nathalie,

Dans les instructions d'installation, je vois que « BearPaw Model BP44 » a souvent été changé pour « BearPaw Model BP4466 ». Est-ce que vous désirez changer le part number de votre BearPaw de BP44 à BP4466 ? Rien n'empêche d'installer un BearPaw BP44 sur un hélicoptère R66.

Aussi, pour la note de plonger dans l'acide, je l'écrirais seulement en français pour votre fournisseur. Si je l'écris en anglais pour le dessin, je dois dire le type d'acide (numéro), le temps, etc.

Renaud

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 2013/07/19 08:11
À : Renaud Berthelot-Richer
Objet : RE: Mesure des jeux dans les clips

Pas de problème. À la semaine prochaine!
En espérant que cela vibre à ton goût aujourd'hui!!

Nathalie Barbeau
VP Commercial Affairs

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From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-19-13 7:56 AM
To: Nathalie Barbeau
Cc: Jean-Francois Lemire
Subject: RE: Mesure des jeux dans les clips

Bonjour Nathalie,

Le document est en pièce jointe. Je fais des essais de vibrations aujourd'hui sur un autre projet et je suis un peu serré dans le temps. Le mieux serait qu'on se parle en début de semaine prochaine. Est-ce que ça vous convient?

Renaud Berthelot-Richer, ing. jr.
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Studies have shown trees live longer when they're not cut down.
Avant d'imprimer, pensez à l'environnement.

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 18 juillet 2013 09:35
À : Renaud Berthelot-Richer
Objet : RE: Mesure des jeux dans les clips

Oui oui!
Envoie moi cela et on se parle plus tard ce matin pour faire le point.

Nathalie Barbeau
VP Commercial Affairs

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www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-18-13 9:22 AM
To: Nathalie Barbeau
Cc: Jean-Francois Lemire
Subject: Mesure des jeux dans les clips

Bonjour Nathalie,

J'ai pris le temps d'installer le BearPaw pour voir si le choix des bolts et des filler blocks était approprié. La clip du centre était plus serrée que la clip avant. J'ai donc enlevé un filler block de 1/16" sur celle d'en avant pour obtenir le même serrage sur les deux clips. Si ça vous intéresse, je peux vous envoyer un document dans lequel j'ai documenté ma démarche et pris des photos.

Renaud Berthelot-Richer, ing. jr.
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Avant d'imprimer, pensez à l'environnement.

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 17 juillet 2013 09:33
À : Renaud Berthelot-Richer
Objet : RE: BearPaws

Renaud,
J'ai plus un clip de back up, tous sont dans des kits pré-assemblés et emballés.
Je préfèrerais que l'on fasse le calcul sans que j'ai à vérifier toutes mes boites pour trouver des U-clips parfaitement au nominal.
Peut-on faire le calcul sans que je t'envoie de nouvelles U clip?

Je rentre en meeting pour une couple d'heures, je t'appelle dès que je sors.

Nathalie Barbeau
VP Commercial Affairs

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nbarbeau@helitowcart.com
info@helitowcart.com

www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-17-13 8:51 AM
To: Nathalie Barbeau
Cc: Jean-Francois Lemire
Subject: RE: BearPaws

Bonjour Nathalie,

En effet, les U clip sont trop profonds de 3/32". Aussi, les bolts du centre sont trop longues si je me fie au dessin.

Est-ce qu'il serait possible de m'envoyer des clips de la bonne hauteur pour que je puisse assembler le BearPaw et confirmer le nombre de filler blocks? (ainsi que le choix des bolts)

Renaud Berthelot-Richer, ing. jr.
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Avant d'imprimer, pensez à l'environnement.

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 16 juillet 2013 15:46
À : Renaud Berthelot-Richer
Cc : nbarbeau@helitowcart.com
Objet : RE: BearPaws

Allo Renaud,
Svp vérifier si le clip que tu as en main est plié trop profond?

À ce jour aucun client ne ma jamais informée de U trop profonds qui les auraient empêcher de fixer solidement.
J'imagine que si cela est arrivé ils ont simplement mis moins de fillers?

Tel que tu m'a proposé, je voudrais garder une marge de manoeuvre qui permette de serrer selon préférence et donc si néc fournir des fillers 1/16 en plus grande qté? (Est-ce que j'ai répondu à ta question?)

Nathalie Barbeau
VP Commercial Affairs

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  nbarbeau@helitowcart.com
  info@helitowcart.com
  www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-16-13 8:50 AM
To: Nathalie Barbeau
Subject: RE: BearPaws

Est-ce que la clip avant est bien serrée lorsque assemblée selon le dessin? Quand je l'ai assemblée à Aviatech, elle était lousse et mon dessin 3D me donne le même résultat. Je serais porté à enlever un filler block de 1/16". Par contre, il se peut que les clips que j'ai en ma possession soient trop hautes (de 3/32" selon mes mesures).

Renaud Berthelot-Richer, ing. jr.
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Avant d'imprimer, pensez à l'environnement.

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 15 juillet 2013 18:00
À : Renaud Berthelot-Richer
Objet : RE: BearPaws

Il faut suivre le dessin.
La photo c'était à demi-monté juste pour voir si on épousait bien en dessous du patin. Surtout ne pas te fier à cette photo pour les fillers.
(Bonne question!)

Nathalie Barbeau
VP Commercial Affairs

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www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-15-13 4:58 PM
To: Nathalie Barbeau
Subject: BearPaws

Bonjour Nathalie,

Lorsque je regarde la photo en pièce jointe, je constate que les filler blocks sont différents de selon les dessins d'assemblage. Sur la clip avant, il y a un filler block de 1/8" et un de 1/16" alors que sur les dessins, c'est un de 1/4" et un de 1/16". Normalement, est-ce que vous assemblez selon les dessins ou selon la photo en pièce jointe?

Renaud

Renaud Berthelot-Richer, ing. jr.
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Avant d'imprimer, pensez à l'environnement.

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: June-02-13 7:47 AM
To: 'Mirko Zgela'
Cc: 'Lucien Barbeau'; 'nbarbeau@helitowcart.com'
Subject: BP44 & BP66 : Un seul produit pour faire les deux?

Mirko,
Cela peut te sembler évident mais si la même paire fait aux deux modèles pouvons-nous simplement fusionner les deux produits et en faire un seul compatible avec les deux hélicos?
Ie, au lieu d'avoir des batches de BP44 et des batches de BP66, est-ce que je pourrais avoir un produit BP44-66 qui soit certifié pour les deux hélicos?
Mon objectif est de limiter mes stocks, mes DMR, DHR, DHF, etc et toute la paperasse que cela demande à gérer....

Si on pouvait simplement faire un ECO et ajouter le R66 au dossier du R44 je serais aux anges....!

Merci!

Nathalie Barbeau
VP Commercial Affairs

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Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: June-14-13 1:23 PM
To: 'Mirko Zgela'
Subject: RE: BP44 & BP66 : Un seul produit pour faire les deux?

Mirko,
Seras-tu bon pour regarder mon dossier la semaine prochaine?
J'aimerais bien pouvoir t'émettre un PO dès que possible pour qu'on commence à travailler sur ceci dès début juillet.
Serais-tu en mesure de nous envoyer une soumission avant le 21 juin?

Merci!!

Nathalie Barbeau
VP Commercial Affairs

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From: Mirko Zgela [mailto:mirkoz@ats-ast.com]
Sent: June-03-13 8:09 AM
To: Nathalie Barbeau
Subject: RE: BP44 & BP66 : Un seul produit pour faire les deux?

Bonjour Nathalie, je crois que ceci serait possible. J'analyse la situation, je te contacte mercredi.

Salutations

Mirko Zgela M.Sc. MPM, CD
President
Aviatech Technical Services
Tel: (819) 601-8049 (Ext 201)
Fax: (819) 377-7928
Cell: (819) 383-7212
E-Mail: MirkoZ@ats-ast.com
Web: www.ats-ast.com

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 2 juin 2013 07:47
À : Mirko Zgela
Cc : 'Lucien Barbeau'; nbarbeau@helitowcart.com
Objet : BP44 & BP66 : Un seul produit pour faire les deux?

Mirko,

Cela peut te sembler évident mais si la même paire fait aux deux modèles pouvons-nous simplement fusionner les deux produits et en faire un seul compatible avec les deux hélicos?
Ie, au lieu d'avoir des batches de BP44 et des batches de BP66, est-ce que je pourrais avoir un produit BP44-66 qui soit certifié pour les deux hélicos?
Mon objectif est de limiter mes stocks, mes DMR, DHR, DHF, etc et toute la paperasse que cela demande à gérer....

Si on pouvait simplement faire un ECO et ajouter le R66 au dossier du R44 je serais aux anges....!

Merci!

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
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Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: June-02-13 7:31 AM
To: 'Mirko Zgela'
Cc: 'Lucien Barbeau'; 'nbarbeau@helitowcart.com'
Subject: Bearpaws pour R66 / Photos et Besoin d'ajustement de pente du pad / Demande de soumission
Attachments: Pad_Profile_Correction_Angle_2013_05_30.pdf; DSC08891A.jpg; DSC08887a.jpg; DSC08886A.jpg; Change Slope Project (2013 05 30).pdf

Allo Mirko,
Tel que promis les infos requises pour élaborer ta soumission pour faire le travail relatif au BP66.
Avec ces infos je t'ai transmis tout ce que tu m'as demandé pour être en mesure d'évaluer.

APPROBATION DU R66!
Tu as du voir le message que je viens de te faire parvenir de notre adresse générale: le R66 a enfin été approuvé vendredi.

PHOTOS BP44 AVEC R66
Suite à ta demande de photos j'ai envoyé Jacob à l'aéroport jeudi mettre notre bearpaw avec un mécanicien sur le R66 de Carol Lagacé.
Jacob m'a rapporté les photos requises. Trouve, ci-joint.

Jacob dit que le pad ainsi que les clips sont aux bons endroits et que c'est la même configuration. (voir photos)
Comme te t'ai confirmé le R66 pèse 300 lbs de moins que le R44.

PENTE DU PAD ET DU BLOC D'APPUI :
Jacob m'a toutefois signalé que le tube en cône ne repose pas sur l'arrière du pad et de son block d'appui qu'on avait ajouté par la suite au ECO no 5 quand on a allongé le pad et créé un bloc de support arrière.
(Il avait correctement enlevé le shoe mais gardé les visses sous le skid).
Le skid arrete de toucher le pad au bout du tube régulier.
À partir du point que le skid est en forme de cône vers l'arrière, il ne touche plus au pad sauf à un point : à l'endroit au sommet du bloc d'appui qui signale le début de la coupe en pente vers le bas.
Est-ce volontaire que l'on ne touche pas sur toute la longueur de ce cône sauf au bout?

On a comme une plongée très profonde dans le pad, puis cela monte en pente, mais à une pente qui ne semble pas idéale.
Selon nos calculs nous avons une pente de +/- 12.5 deg et ce serait mieux d'avoir une pente de +/- 7.5 degrés. (on a fait ce calcul avec un skid qu'on a au bureau de R44)
Voir le croquis qu'on a préparé ci-joint.
Je crois qu'il serait possiblement nécessaire de revoir la pente du pad et de son bloc d'appui pour mieux épouser la partie en cone du skid (s'il faut que cela s'épouse? Faut-il que cela ne touche pas?)

Jacob dit que si on sert les clips alors le pad a tendance à faire le rond (voir la courbe que j'ai tenté de dessiner sur l'un des documents ci-joint).
Aussi, sur l'une des photos on voir l'air sous le tube mais Jacob dit que c'est seulement sur la moitié du tube. L'autre moitié on touche au bloc de support.

Je n'ai eu aucun commentaire de clients vs le non épousement à date depuis qu'on a lancé le ECO5 (pad plus long avec bloc de support).
Et quand on prends des photos tout a l'air correct.
C'est quand on regarde de proche et sous le patin qu'on voit que cela n'épouse pas bien.

Je t'ai expédié vendredi une paire de BP44 ainsi qu'un bout de skid de R44; Tu les recevras lundi.
C'est le bout de skid et la paire de BP avec lesquels on a pris nos mesures de degrés.
On voulais te donner l'outil pour etre en mesure de réellement évaluer le degré de pente nécessaire.(tu arriveras sans doute à des mesures plus précises)

PROJET BP66 :
Dans le câdre du projet d'ajout du BP66 à notre certification de BP44, je voudrais donc que l'on évalue si nécessaire de revoir la pente du pad et de son bloc d'appui.
Tel que discuté, on a accès à un R66 et on peut se rendre chez vous pour les tests si requis.

J'attends tes commentaires et ta soumission budgétaire.
J'aimerais démarrer le projet dès que possible .
Ce serait l'fun d'avoir le dossier fait cet été.
Aussi je suis en fin de batch de BP44 et je veux lancer une nouvelle production de PADS vers juillet pour les avoir pour sept quand on aura la certif.
Donc, faut que je me dépêche à relâcher cette composante pour que tout soit prêt pour septembre.

Hâte de t'entendre à nouveau,
Ciao!

Nathalie Barbeau
VP Commercial Affairs

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www.helitowcart.com

From: Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Sent: May-30-13 10:32 AM
To: 'Mirko Zgela'
Cc: 'Lucien Barbeau'
Subject: Flight Manual for R66

Mirko,
J'ai appelé Ulrich chez Canadian. Il dit que le Flight Manual est sur le site web de Robinson.
Voir le lien suivant (Publications / R66 turbine / R66 Pilot Handbook)

http://www.robinsonheli.com/r66_poh.html

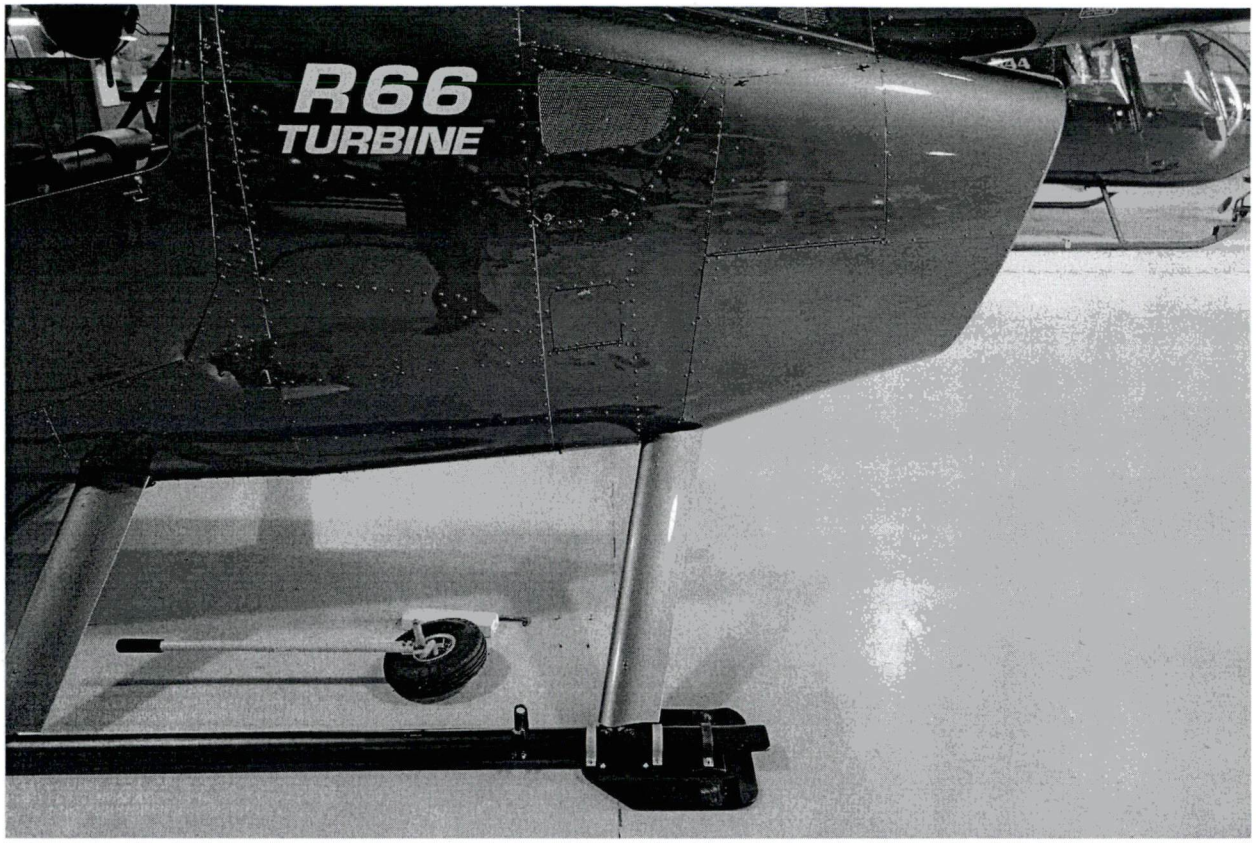
Il me confirme aussi que le R66 est 300lbs moins lourd que le R44. Voir p. 2 -3 de ce manuel.

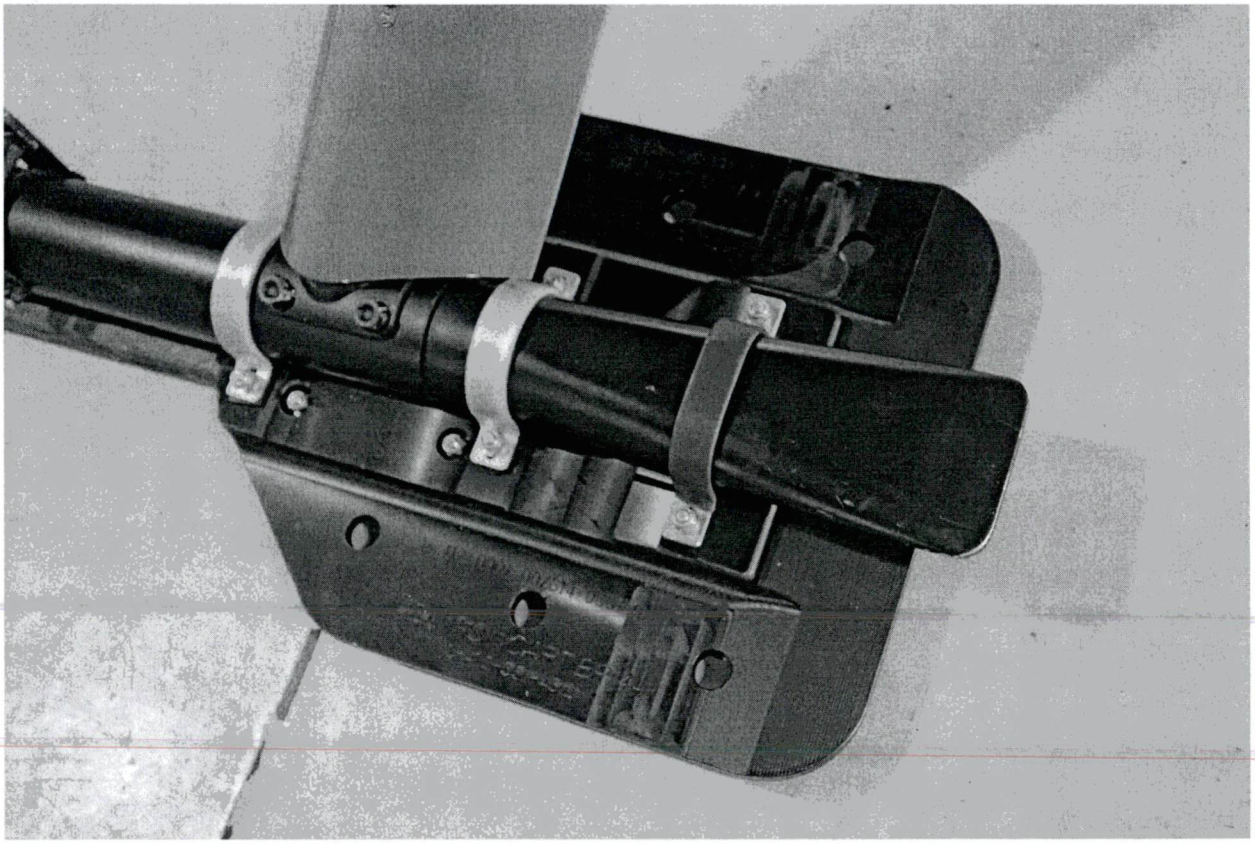
Pour les photos, je vais devoir organiser une séance d'installation chez Canadien.
Je te les envoie dès que possible.

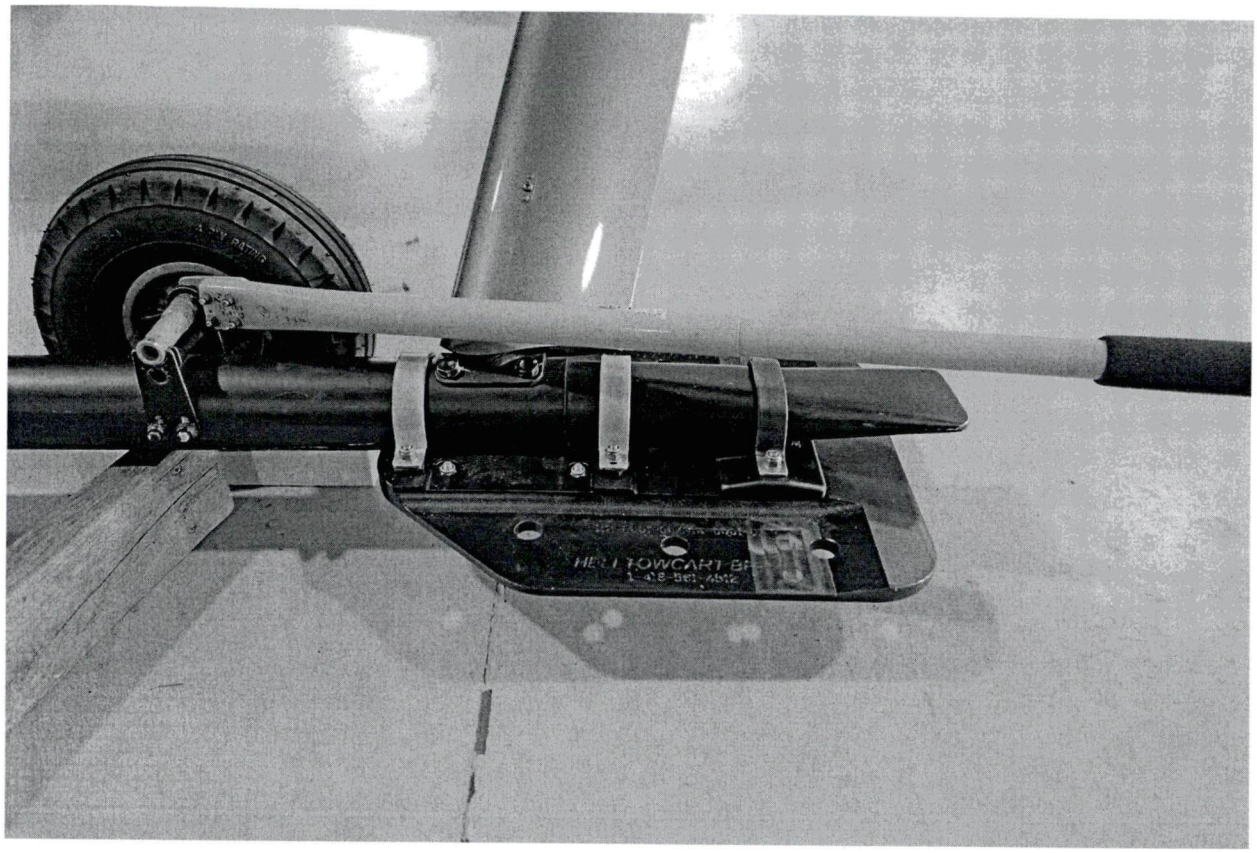
Ciao!

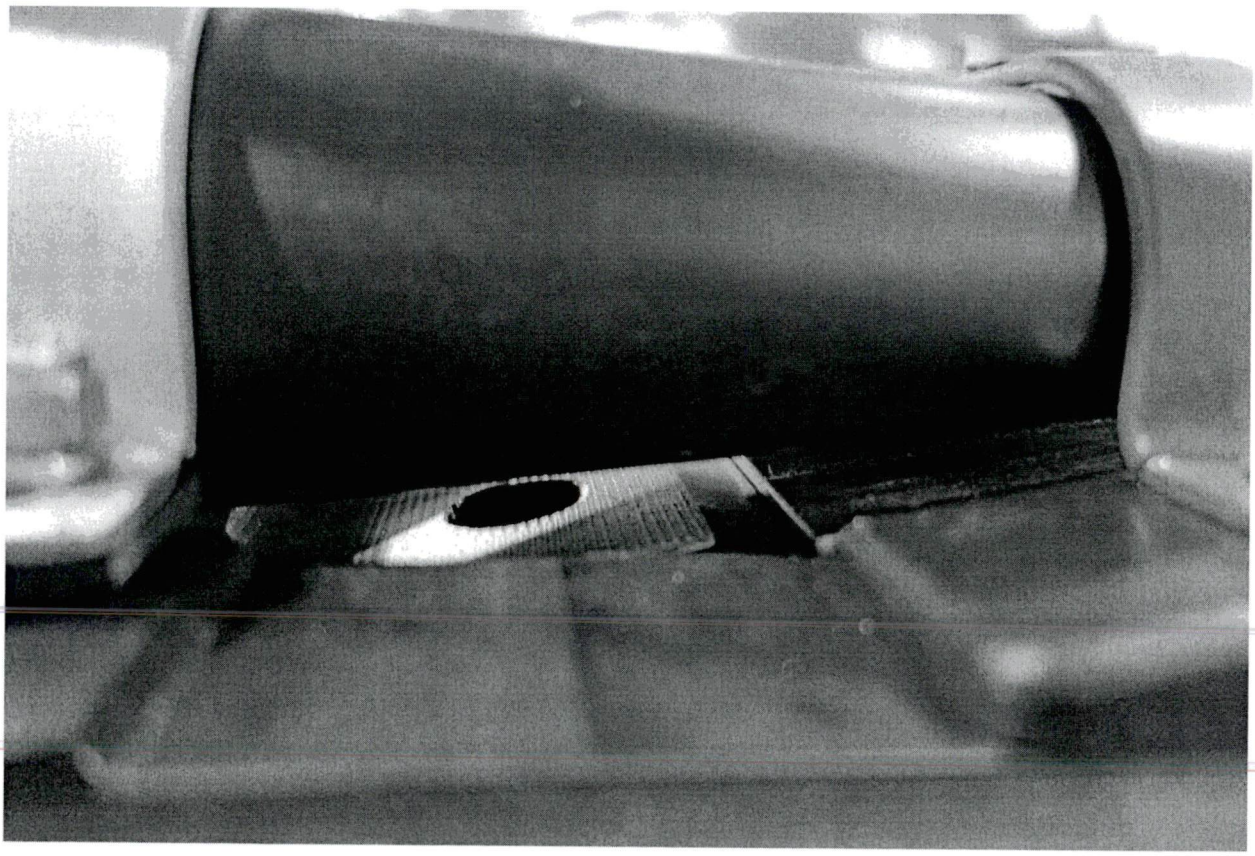
Nathalie Barbeau
VP Commercial Affairs

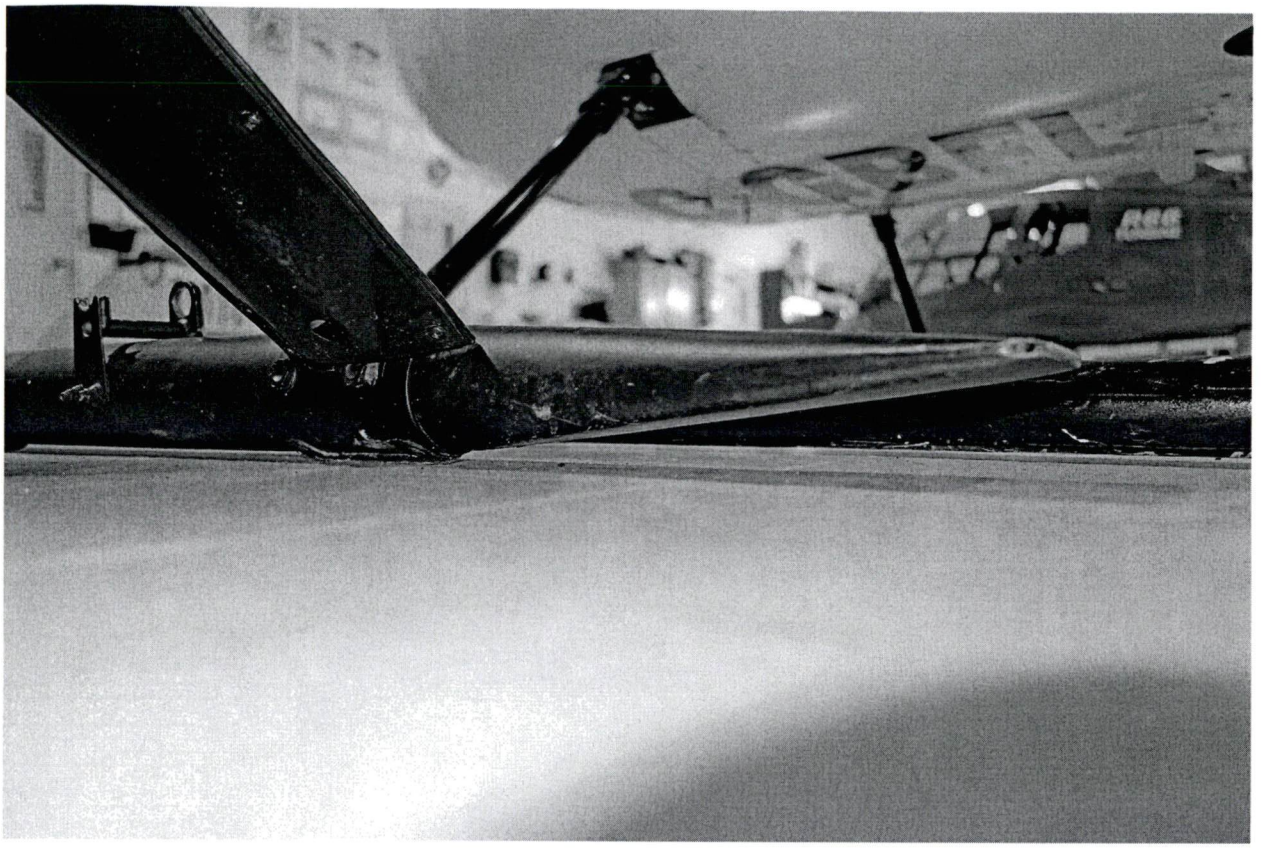
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R66
TURBINE









HELI TOWCART BR
1 418-561-4512

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: May-30-13 10:32 AM
To: 'Mirko Zgela'
Cc: 'Lucien Barbeau'
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Voir le lien suivant (Publications / R66 turbine / R66 Pilot Handbook)

http://www.robinsonheli.com/r66_poh.html

Il me confirme aussi que le R66 est 300lbs moins lourd que le R44. Voir p. 2 -3 de ce manuel.

Pour les photos, je vais devoir organiser une séance d'installation chez Canadien.
Je te les envoie dès que possible.

Ciao!

Nathalie Barbeau
VP Commercial Affairs

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Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: May-27-13 1:24 PM
To: 'mirkoz@ats-ast.com'
Subject: BP66.... Un projet

Mirko,
On voudrait ajouter un autre modèle de BP à notre liste, les Bearpaws pour le 66.
On a essayé nos BP44 sur le 66 et c'est compatible.
Serait-il possible de nous faire une soumission pour ajouter ce produit?

Je sais que le 66 n'est pas encore approuvé au Canada, mais j'aimerais qu'on soit prets quand cet hélico sera enfin approuvé.
Quelles sont vos disponibilités en ce moment?
Avez vous du temps cet été?

J'espère que tu vas bien!
Salutations,

Nathalie Barbeau
VP Commercial Affairs

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Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: May-27-13 2:27 PM
To: 'Mirko Zgela'
Subject: RE: BP66.... Un projet

Mirko,
Merci pour la réponse rapide!

Serais-tu en mesure de me faire une soumission? Faut que je parle budget avec Lucien.
On a accès à un R66 chez Can heli à Qc quand ce sera néc.

Merci!!

Nathalie Barbeau
VP Commercial Affairs

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From: Mirko Zgela [mailto:mirkoz@ats-ast.com]
Sent: May-27-13 2:26 PM
To: Nathalie Barbeau
Subject: RE: BP66.... Un projet

Bonjour Nathalie, nous avons du temps mais il faudrait augmenter la surface du Bearpaw en fonction des masses au décollage. Je ne sais pas si le R66 a la même masse. Si non aucun problème pour la compatibilité.

Salutations

Mirko Zgela M.Sc. MPM, CD
President
Aviatech Technical Services
Tel: (819) 601-8049 (Ext 201)
Fax: (819) 377-7928
Cell: (819) 383-7212
E-Mail: MirkoZ@ats-ast.com
Web: www.ats-ast.com

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 27 mai 2013 13:24
À : Mirko Zgela
Objet : BP66.... Un projet

Mirko,
On voudrait ajouter un autre modèle de BP à notre liste, les Bearpaws pour le 66.
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Avez vous du temps cet été?

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Salutations,

Nathalie Barbeau
VP Commercial Affairs

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Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: May-27-13 1:21 PM
To: 'Lucien Barbeau'
Subject: Bearpaws 66 - Aller avec Mirko?

Lucien,
À discuter à ton retour. Je crois qu'on a pas le choix d'aller avec Mirko pour ceci.
Je vais lui demander une soumission.

Nathalie Barbeau
VP Commercial Affairs

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info@helitowcart.com
www.helitowcart.com

From: Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Sent: May-27-13 1:18 PM
To: 'Jeff Clarke'
Cc: 'Lucien Barbeau'
Subject: RE: Bearpaws 66 - Evaluating Impact of Moving forward

Jeff,
I really appreciate your reply.
I understand your position.
I will discuss this with Lucien.

Good luck with the move.
What dates are you going to be on the move again?

Nathalie Barbeau
VP Commercial Affairs

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www.helitowcart.com

From: Jeff Clarke [mailto:jeff@aerodesign.ca]
Sent: May-27-13 1:15 PM
To: 'Nathalie Barbeau'
Cc: 'Lucien Barbeau'; info@helitowcart.com; ted@aerodesign.ca
Subject: RE: Bearpaws 66 - Evaluating Impact of Moving forward

Hi Nathalie,

I am aware of your bearpaws for the R66, but I do not have any of the details on the project. There are a few issues on my side:
1. Having not been involved in the review, I cannot speak to the state of the original design work. The differences in the airframe and landing gear would indicate that it will have to be treated as a "new" project, including flight testing.
2. I have asked Ted a number of times how he would like to work these types of projects and have not received any meaningful response from him. He also has not been in for the last week, so I can't specifically discuss this with him. I think he just wants to be retired.
3. Since Ted appears to not be an option, we will be talking to some DARs on the coast that may be interested in working with us, but I have not put anything in place yet. We did not buy the consulting part of the business from Ted, only the manufacturing.
4. With our move, I cannot commit to any time frame. Our priority is getting our shop up and running and product out the door. Once that is done I can start to look at other potential work, and the support (i.e. a DAR) required.

I know that is not what you want to hear, but it's all I can say for now.

Regards,
Jeff

From: Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Sent: May 27, 2013 9:58 AM
To: 'Jeff Clarke'
Cc: 'Lucien Barbeau'; info@helitowcart.com; ted@aerodesign.ca
Subject: Bearpaws 66 - Evaluating Impact of Moving forward

Hello Jeff,
As you may know we had started working on getting Bearpaws for the R66 approved.
We have not been able to go ahead with this because the R66 is not yet approved in Canada.

As well, Ted told me that he had checked the work done by our previous engineering firm for the approval of the R44 bearpaws.
He says he would not work this way and would not use this work at all to simply extend the file to the R66 since the product is the same.
In order for us to take a decision of what to do about this-, I would like to know what is the quotation from you and Ted to do the work to make the file to your liking?
What is the extent of the planned required work? (what documents would have to be redone? What tests? Where are the elements of engineering made by our previous engineering firm that are a concern to you? How much time it would take?)
I need to move on this so I would really like to be able to sit with Lucien and know what I am talking about.
I would really like having this product ready when the 66 is finally approved.
I don't want to start from scratch then with a delay of months.
With your current move, would such a project be done in Calgary or in BC?
Where is the closest R66 to do the work if needed? Who owns it?

The main question is.... do you feel like doing it? Does it make sense to you?
If yes, what would be your lead time?

I await your feedback,
Meanwhile I send you both big hugs from St-Nicolas!!

Nathalie Barbeau
VP Commercial Affairs

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14 mai

Ac parlé à Steven vs BPCO:

- ils peuvent pas vraiment commencer
  - paramètres pour tests en vol indéterminés
- ils ne peuvent pas commencer avant juin
- ± 14 jours
  ± 6 semaines

Informations Générales

Numéro du connaissement: **1050-33**
No Réf. Expéditeur: **F4079**
Numéro de Cotation:
Date: **02 / 04 / 2012**
Frais de transport: **paye**

Informations Tierce partie (optionel)

Nom:
À l'attention de:
Adresse:
Suite:
Ville:
Pays:
Province/État:
Code Postal:
Téléphone:
Télécopieur:

Instructions spéciales

Courtier en douanes

Informations sur l'Expéditeur

Nom: **HELITOWCART**
À l'attention de:
Adresse: **877A Alphonse-Desrochers**
Suite:
Ville: **St-Nicolas**
Pays: **Canada**
Province/État: **QC**
Code Postal: **G7A 5K6**
Téléphone: **418-836-4525**
Télécopieur:

Informations sur le Destinataire

Nom: **Al Mansoori**
À l'attention de:
Adresse: **3696 South Lisbon St**
Suite:
Ville: **Aurora**
Pays: **États-Unis d'Amérique**
Province/État: **CO**
Code Postal: **80013**
Téléphone: **303 241 1455**
Télécopieur:

Informations sur les envois internationaux

Pour les envois internationaux, vous devez nous télécopier la facture commerciale avec votre numéro de connaissement. (Mesure temporaire)

Informations sur la marchandise

Quantité	Type d'unité	Description des marchandises	Dimensions (Lg x La x Ht)	Poids
1	package	Bloc d'attache	20	2 LBS

Services Additionnels

Cueillette résidentielle :	
Livraison dans une résidence privée :	X
Cueillette avec un hayon hydraulique :	
Livraison avec hayon hydraulique :	
Marchandises Dangereuses :	
Déchargement manuel :	
Livraison sur rendez-vous :	

Informations services

Type de service: **usa**
Type de colis: **nonDocument**
Options / services: **lendemain**
Valeur déclarée: **295.00**
Valeur assurée:
Droits et taxes: **destinataire**
Documentations douanières: **Factures commerciales 3**

Acceptation des conditions de transport Carriage conditions acceptation Signature de l'expéditeur/Shipper's sign.	Chauffeur/Driver's sign	Signature du destinataire/Consignee's sign
_____X	Heure/Time	_____X Date:___/___/___ Heure/Time: ___ :___

CLAUSES DE TRANSPORT

La compagnie « Groupe Levasse et ses divisions » nommée ci-après « Groupe Levasse » assure au moyen d'un réseau international, auquel elle participe, au transport et à la livraison de documents et colis pour le compte du client ci-dessus dénommé « expéditeur ». Le transport et la livraison sont soumis au présent contrat.

I-CONDITIONS GÉNÉRALES

1. En remettant pour fins de transport l'envoi désigné ci-dessus, l'expéditeur reconnait que la présente lettre de transport, non-négociable, a été établie par lui-même, ou en son nom, en son compte et risques pour Groupe Levasse, qui, agissant seulement comme agent n'a aucune responsabilité de sa part. L'expéditeur, par la présente, certifie que toutes les mentions ont été vérifiées et sont correctes. 2. Les marchandises décrites dans le présent contrat sont acceptés pour le transport et la livraison en bon état apparent, sauf indication contraire. 3. Groupe Levasse peut, pour accélérer la livraison d'un envoi, se substituer un autre transporteur y compris un transporteur terrestre sans changer la nature et les conditions de ce contrat. 4. Groupe Levasse n'accepte aux fins de ce présent contrat aucune matière dangereuse, passeport, bijoux (excepté bijoux de fantaisie), tabac, alcool, chèque de voyage et argent liquide. 5. L'expéditeur doit fournir toutes les informations et la déclaration de valeur relatives à l'envoi qui est nécessaire pour toute autorité douanière, administrative, sanitaire ou autre et sera responsable pour tout dommage résultant de déclarations fausses, erronées ou divergentes. 6. Il est de l'essence même du contrat que les droits et taxes relatives à l'envoi de marchandises soient toujours facturées au destinataire à moins d'avis contraire.

II-LIMITATIONS DE RESPONSABILITÉ

Si le transport compte une destination finale ou une escale dans un pays autre que celui du départ, la responsabilité de Groupe Levasse peut être soumise aux conditions de la « Convention de Varsovie » qui agit et dans la plupart des cas, limite la responsabilité des transporteurs en cas de pertes, dommages ou retards subis par les marchandises à moins que l'expéditeur ait pris une assurance supplémentaire sur les marchandises. 8. Il est de l'essence même du contrat que la responsabilité éventuelle de Groupe Levasse en cas d'avarie ou de la perte de l'envoi qu'elle sera limitée à la somme maximum de cent dollars (100.00$ CDN) canadien. Cette limite s'appliquera même en cas de négligence ou faute de Groupe Levasse. 9. En cas de retard à la livraison de l'envoi, la responsabilité de Groupe Levasse est limite au remboursement du montant du coté de transport de chaque envoi. 10. En cas de retard découlant de formalités douanières ou de toute autre cause tant en dehors du contrôle de Groupe Levasse, celle-ci sera exempte de toute responsabilité en ce qui a trait aux normes de livraison établies. 11. Groupe Levasse ne sera tenu en aucun cas responsable de dommages subis par l'envoi en raison de cas fortuits ou de force majeure.

III-RÉCLAMATIONS

12. Il est expressément convenu que dans le cas d'avarie, perte partielle, retards, non livraison ou autres réclamations, que l'expéditeur doit faire la réclamation par écrit à Groupe Levasse dans les (30) jours suivant la remise de l'envoi à Groupe Levasse. 13. Aucune réclamation faites par l'expéditeur ne sera traitée par Groupe Levasse tant et aussi longtemps que le coté du transport n'ait été payé. Le montant réclamé ne peut être dédit du côté du transport. 14 Tout litige pouvant survenir entre les Parties sera soumis aux lois de la Province de Québec et les Parties au présent contrat attribuent compétence exclusive aux tribunaux de la ville de Montréal, Province de Québec, Canada.

Prix	Carburant	Autres	Total

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]

Sent: May-10-12 10:07 AM

To: 'Steven Fahey'

Cc: 'Ted Burgoin'; 'Lucien Barbeau'; 'info@helitowcart.com'

Subject: BearPaws for R66 / follow up on development project

Hello Steven,
I just got a call again from another customer in Qc that will receive his R66 shortly.
He needs BP66.

Where are we in the development & approval of this product?
How much work has been done yet?
How much work still needs to be done?
What would be the realistic lead time to complete the work?

Please provide estimate within the next 10 days.
Thank you!

Nathalie Barbeau
VP Commercial Affairs

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info@helitowcart.com
www.helitowcart.com

2.5 Mechanical Features

Wheels

Recommended tire pressure for pneumatic wheels is indicated in the chart below.

Wheel Type & Tire Pressure			
Traction Wheel:	All models	16" x 6.5" (40x16 cm)	30-65 psi
Support wheels			
	V1020-	12" x 3.5" (30 x 9 cm) on bearings	50-80 psi
	V1022:	12" x 2.5" (30 x 9 cm) on bearings	Full Rubber wheel
	V1030, V1032, V1040:	12" x 3.5" (30 x 9 cm) on bushings	Full Rubber wheel

Note 1: If additional traction is desired under challenging conditions, tire pressure may be reduced.
Note 2: When shipping helicopter carrier by air, tires should be deflated to prevent damage to tubes.

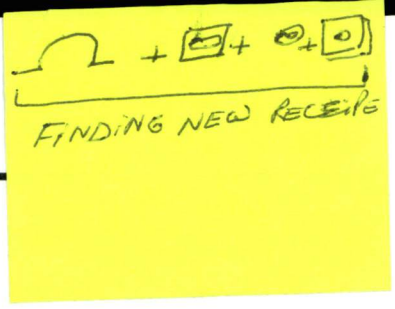
Ensure support wheels on bearings are oiled yearly. Ensure support wheels on bushings are greased monthly. Failure to do so can result in accelerated wear of components.

IMPORTANT: Always meet obstacles at a slight angle to help support wheels drive over them. Keep from meeting obstacles head on as this can result in an abrupt stop to movement.

US STC?

10 mai 2012





Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: September-27-13 9:21 AM
To: Nathalie Barbeau
Cc: Jean-Francois Lemire; Mirko Zgela
Attachments: 314-0006-15 Rev C (DRAFT).pdf; 314-0023-15 Rev B (DRAFT).pdf; 112-0001-00 Rev F (DRAFT).pdf

Categories: Cat 1 - Needs important Action

Bonjour Nathalie,

Voir les mises en plan demandées en pièce jointe.

À noter : **Ces mises en plan sont préliminaires** puisque les mises en plan finales doivent être signées par Mirko Zgela. La mise en plan d'installation (112-0001-00) ne peut pas être utilisée pour effectuer l'installation sur le R66 et est seulement envoyée à titre informatif pour que tu puisses préparer les packages de boulons et de filler blocks.

Aussi, ne pas oublier que les boulons des Iceblades sont pris en compte dans la liste de matériel du dessin 112-0001-00.

En espérant que ça t'aide!

Renaud

Renaud Berthelot-Richer, ing. jr.
CONCEPTION STRUCTURE AÉRONAUTIQUE
AERONAUTICAL STRUCTURE DESIGN
T: 819.601.8049 #211
renaudb@ats-ast.com

Aviatech
SERVICES TECHNIQUES INC.
TECHNICAL SERVICES INC.
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Trois-Rivières, Qc, Canada
G9A 4G1
F: 819.377.7928
www.ats-ast.com

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Studies have shown trees live longer when they're not cut down.
Avant d'imprimer, pensez à l'environnement.

Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: August-28-13 9:51 AM
To: Nathalie Barbeau
Subject: Ancienne configuration

Categories: Cat 1 - Needs important Action

Bonjour Nathalie,

Voici la manière dont les BearPaw ont été installés avec succès hier, sans les slotted clip supports :

Avant :
- AN4-14A
- 1 washer AN960-416 (263-0001-17) en dessous du Bearpaw
- 1 filler block 1/4" (314-0012-01)
- U Shaped Clip (314-0006-15)
- 1 washer AN960-416 (263-0001-17) au dessus
- 1 nut AN365-428A (262-0001-17)

Centre :
- AN4-13A
- 1 washer AN960-416 (263-0001-17) en dessous du Bearpaw
- 1 filler block 1/8" (314-0015-01)
- U Shaped Clip (314-0006-15)
- 1 washer AN960-416 (263-0001-17) au dessus
- 1 nut AN365-428A (262-0001-17)

Arrière :
- AN4-16A
- 1 washer AN960-416 (263-0001-17) en dessous du Bearpaw
- 1 filler block rear (314-0022-01)
- Pas de washers pour remplir le recess dans le filler block
- 1 Low U-Shaped Clip (314-0023-15)
- **2** washers AN960-416 (263-0001-17) au dessus
- 1 nut AN365-428A (262-0001-17)

Bonne journée!

Renaud Berthelot-Richer, ing. jr.
CONCEPTION STRUCTURE AÉRONAUTIQUE
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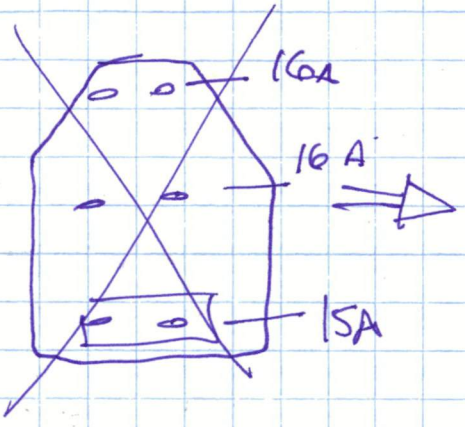
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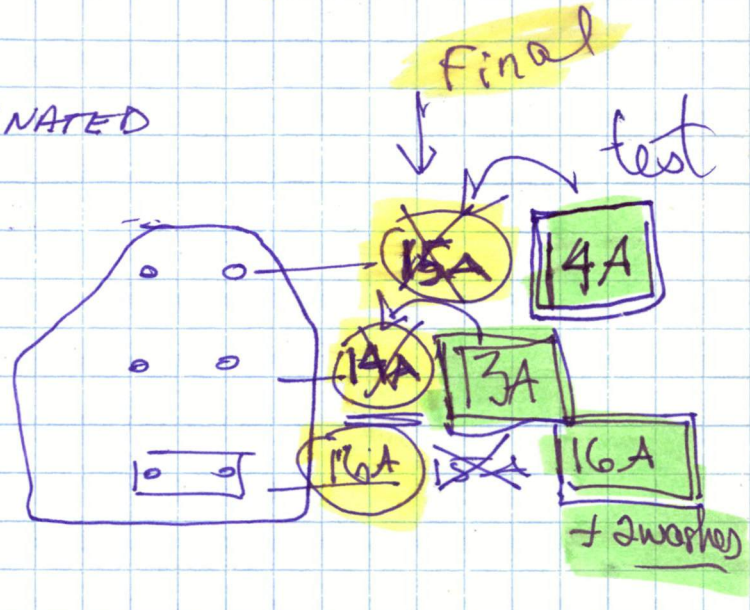
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Avant d'imprimer, pensez à l'environnement.

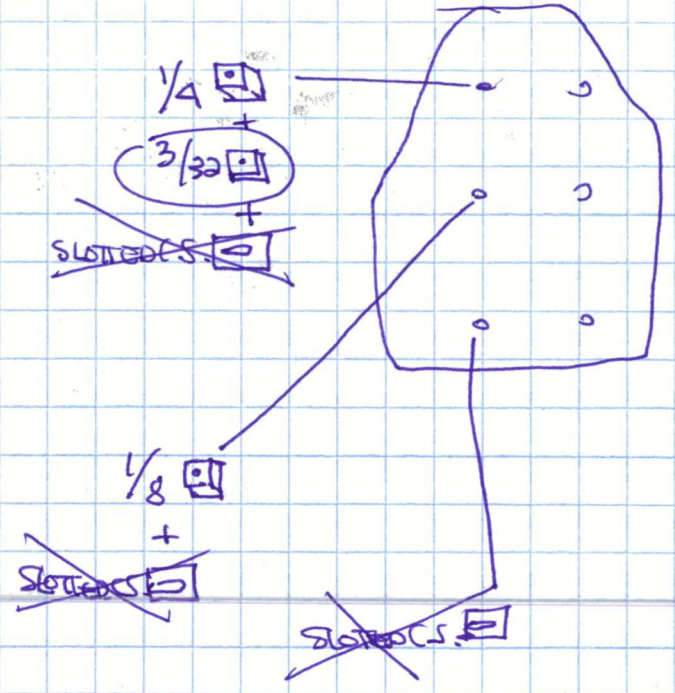
ECO #1 - SYNTHESIS OF CHANGES JUNE - SEPT 2013

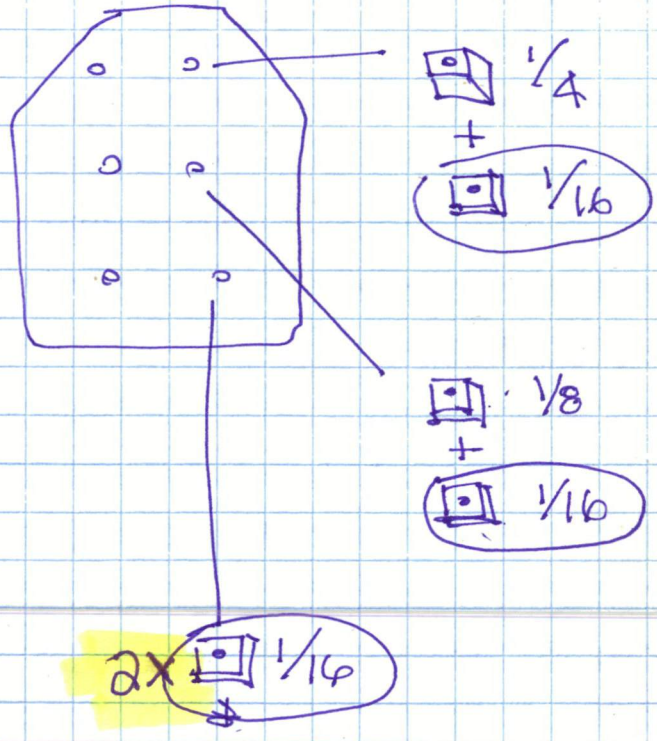
- PAD → REORG DWG TO MAKE IT READABLE IN 8½x11.
  ADDED MEASURABLE DIMENSIONS
  REMOVED SOME ENGRAVING
  UPDATED WEAR ZONES
- FILLER BLOCK REAR → MODIFIED ← SLOTS / SHAPE
- SLOTTED CLIP SUPPORT: ELIMINATED
- BOLTS →





- FILLER BLOCKS:





Extra washer spacer

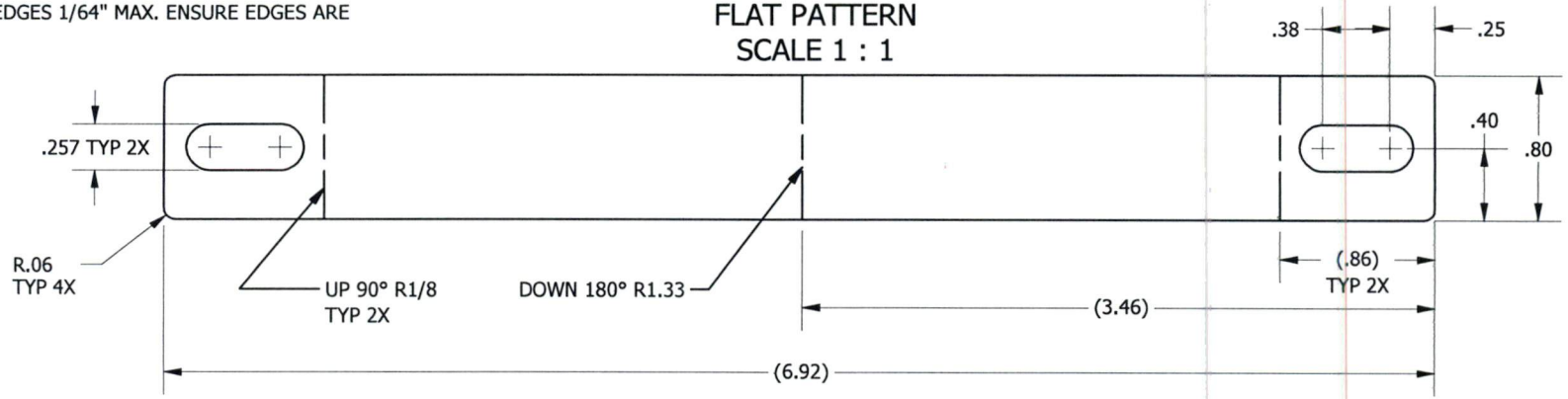
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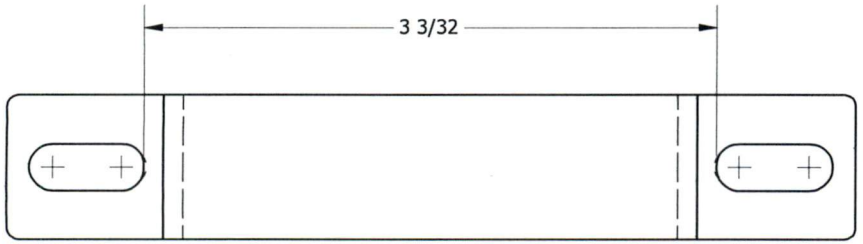
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

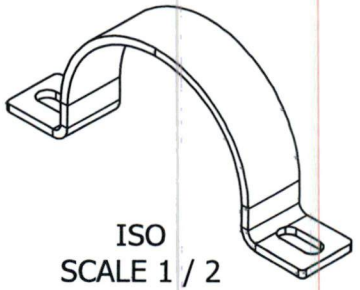
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FLAT PATTERN
SCALE 1 : 1

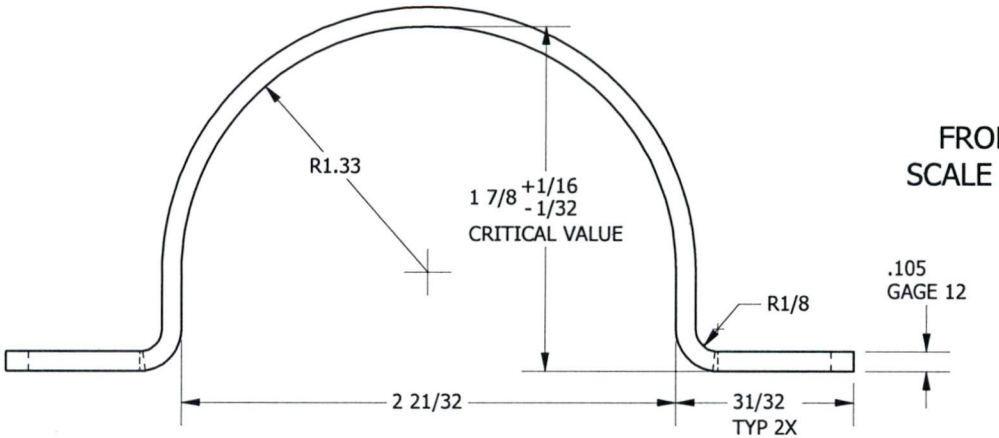




TOP
SCALE 1 : 1



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	G.LAPOINTE	M. ZGELA	2006-04-24
B	0.800 WAS 0.750 - GAGE 12 WAS 14	G.LAPOINTE	M. ZGELA	2006-07-31
C	MODIFIED BEND RADIUS FROM 1/16" TO 0.120"	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: G. LAPOINTE	DATE: 2006/04/24	
CHECKED BY:	DATE:	DEFINITION: BEARPAW U-SHAPED CLIP
APPROVED TCCA BY: M. ZGELA	DATE: 2006/04/24	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	DRAWING NUMBER: 314-0006-15 REV: C
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE: A	
	SCALE: N/A	SHEET: 1 OF 1

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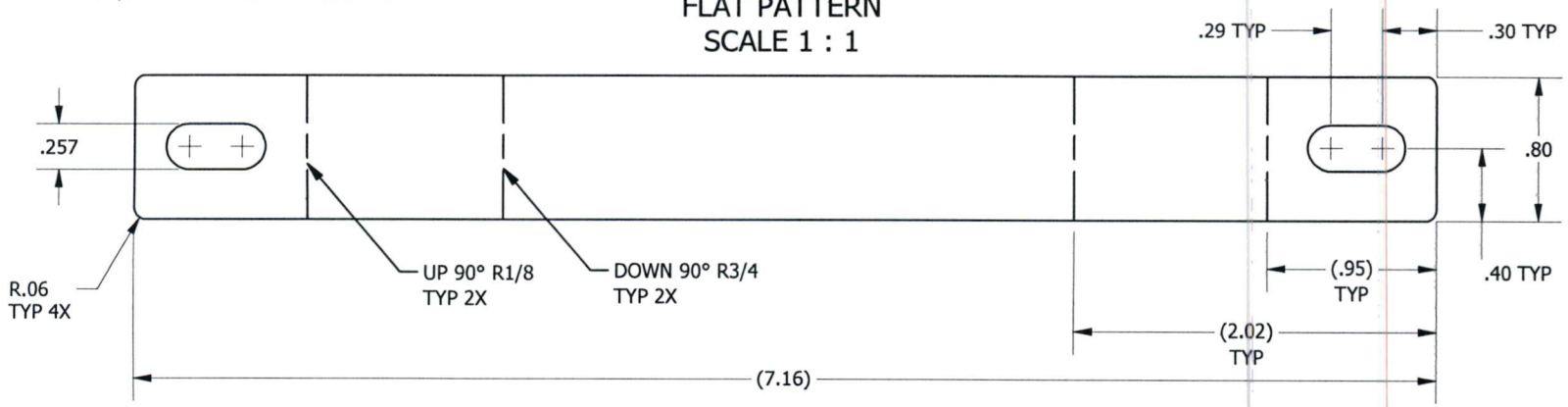
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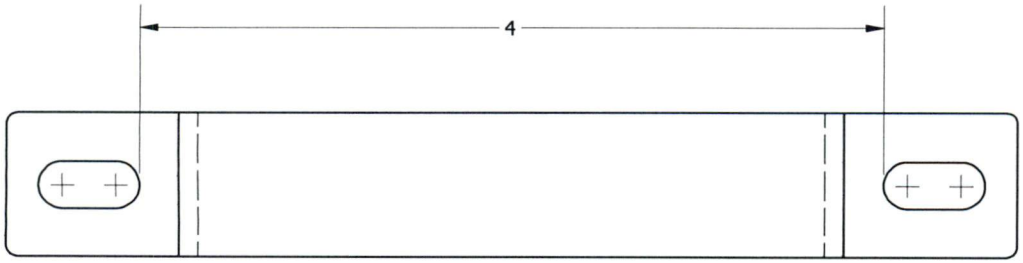
1. INTERPRET DRAWING IN ACCORDANCE WITH ASME Y14.5M 1994, DIMENSIONS AND TOLERANCING

2. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX. ENSURE EDGES ARE SMOOTH.

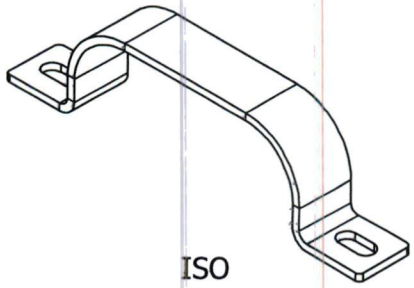
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
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FLAT PATTERN
SCALE 1 : 1

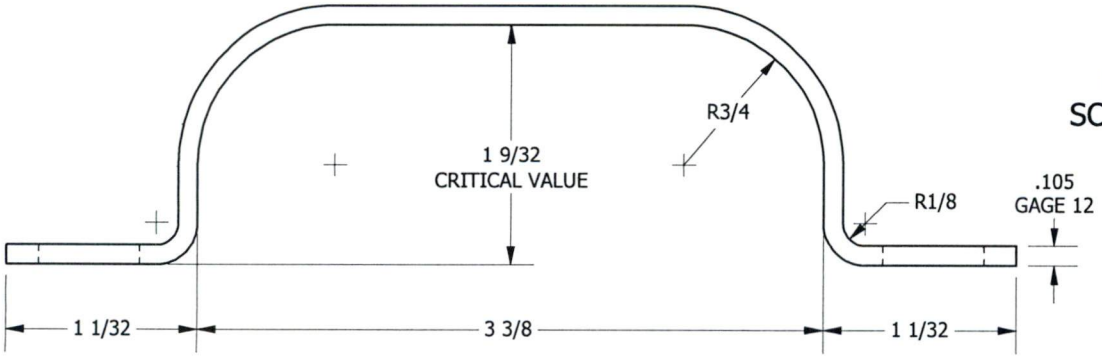




TOP
SCALE 1 : 1



ISO
SCALE 1 / 2



FRONT
SCALE 1 : 1

NOTE AU FOURNISSEUR:
ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT _____
PASSER DANS L'ACIDE
REMPLIR FICHE D'INSPECTION CLIENT

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION	S. BERNIER	M. ZGELA	2010-04-15
B	MODIFIED BEND RADIUS (R3/4) AND REDUCED HEIGHT	R.B.R.	M. ZGELA	2013-08-09

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DRAFTED BY: S. BERNIER	DATE: 2010-04-15	
CHECKED BY:	DATE:	
APPROVED TCCA BY: M. ZGELA	DATE: 2010-04-15	
IF NOT SPECIFIED GENERAL TOLERANCE	UNITS: INCH	
1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	SIZE A	
	SCALE: N/A	

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DEFINITION:
BEARPAW
LOW U-SHAPED CLIP

DRAWING NUMBER: 314-0023-15

REV: B

SHEET: 1 OF 1

1. Mesure des clips :

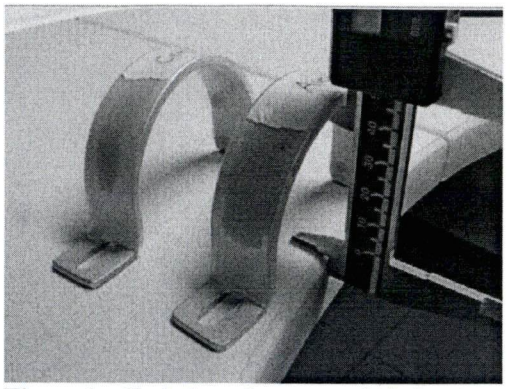


Figure 1 – Technique de mesure de la hauteur

Clip	Hauteur clip + 1 shrink (in)	Moy. (in)	Ep. clip + 2 shrinks (in)	Moy. (in)	Ép. clip sans shrink (in)	Moy. (in)	Ép. heat shrink (in)	Hauteur clip mesurée (in)	Hauteur clip dessin (in)	Diff. (in)
Avant	1.979 1.977 1.979	1.978	0.158 0.159 0.162	0.160	0.100 0.099 0.099	0.099	0.031	2.009	1.922	+0.087 (3/32")
Centre	1.980 1.982 1.979	1.980	0.155 0.161 0.156	0.157	0.102 0.101 0.100	0.101	0.028	2.008	1.922	+0.086 (3/32")
Arrière	1.553 1.555 1.555	1.555	0.147 0.151 0.151	0.150	0.103 0.100 0.101	0.101	0.025	1.580	1.560	+0.020 (1/64")

Le tableau précédent démontre que les clips sont environ 3/32" trop longs.

2. Installation selon le dessin:

2.1 Installation des bolts et washers

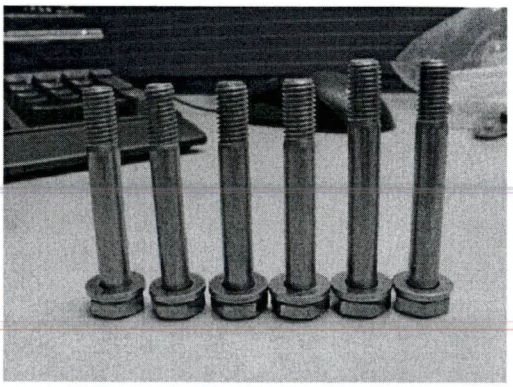
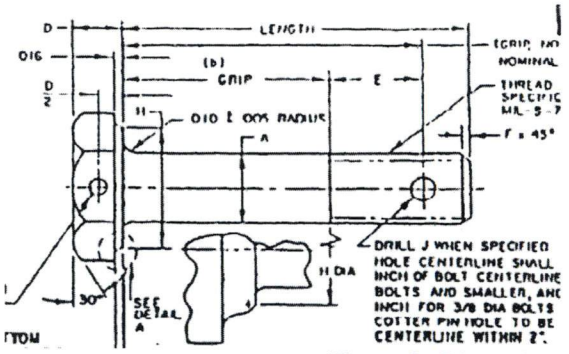


Figure 2 – Installation des bolts



DASH NO	AN3 GRIP ±1/64	AN3 LENGTH +1/32 -1/64	AN4 GRIP ±1/64	AN4 LENGTH +1/32 -1/64
3	1/16	15/32	1/16	15/32
4	1/8	17/32	1/16	17/32
5	1/4	21/32	3/16	21/32
6	3/8	25/32	5/16	25/32
7	1/2	29/32	7/16	29/32
10	5/8	1- 1/32	9/16	1- 1/32
11	3/4	1- 5/32	11/16	1- 5/32
12	7/8	1- 9/32	13/16	1- 9/32
13	1	1-13/32	15/16	1-13/32
14	1-1/8	1-17/32	1- 1/16	1-17/32
15	1-1/4	1-21/32	1- 3/16	1-21/32
16	1-3/8	1-25/32	1- 5/16	1-25/32
17	1-1/2	1-29/32	1- 7/16	1-29/32
20	1-5/8	2- 1/32	1- 9/16	2- 1/32
21	1-3/4	2- 5/32	1-11/16	2- 5/32

Figure 3 - Dimensions des bolts

AN4-15 : Length = 1-21/32 (1.656")

Longueur mesurée (sans le washer): 1.651"

AN4-16 : Length = 1-25/32 (1.781")

Longueur mesurée (sans le washer): 1.791"

2.2 Installation des filler blocks

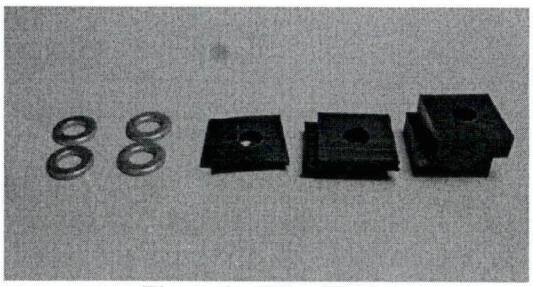


Figure 4 – Filler Blocks

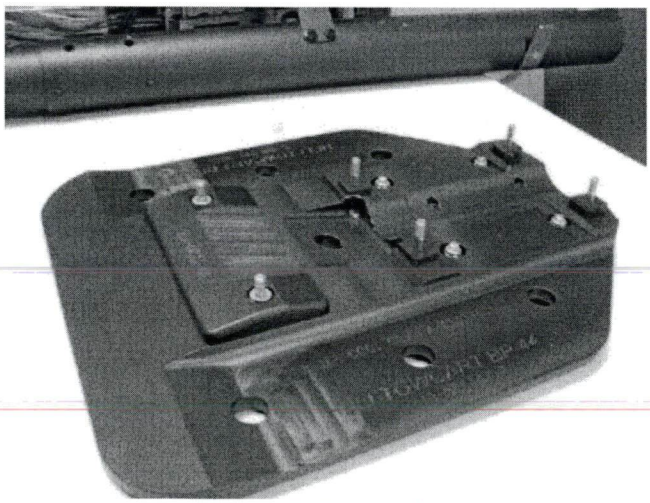


Figure 5 - Installation des filler blocks

2.3 Installation des clips et du skid



Figure 6 – Clips

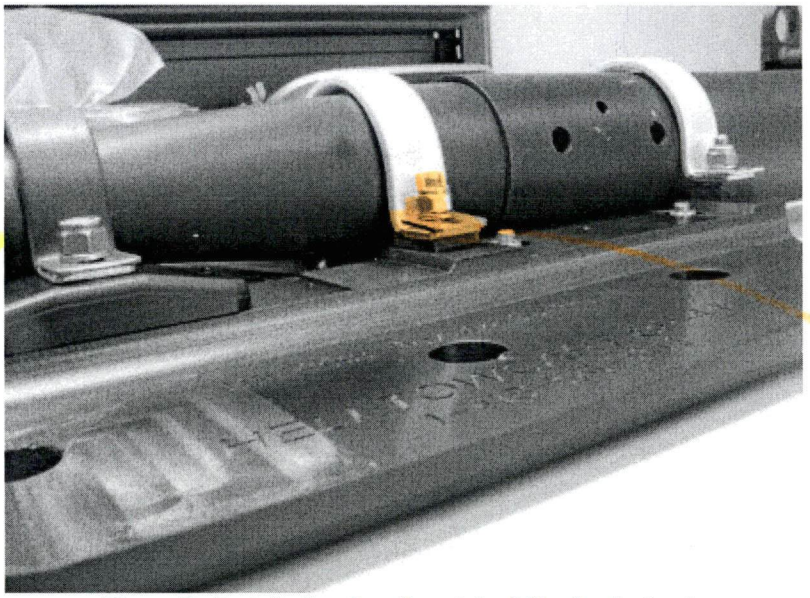


Figure 7 - Installation des clips et du skid selon le dessin

Les rivets du skid ont été bien positionnés dans les trous prévus à cette fin dans le bearpaw. Les nuts sur la clip arrière s'assemblent bien. Par contre, les nuts sur la clip centrale et avant ne se serrent pas car les bolts sont trop longues (Figure 8). Malgré tout, le skid tient assez bien en place, bien qu'il soit possible de le bouger un peu.

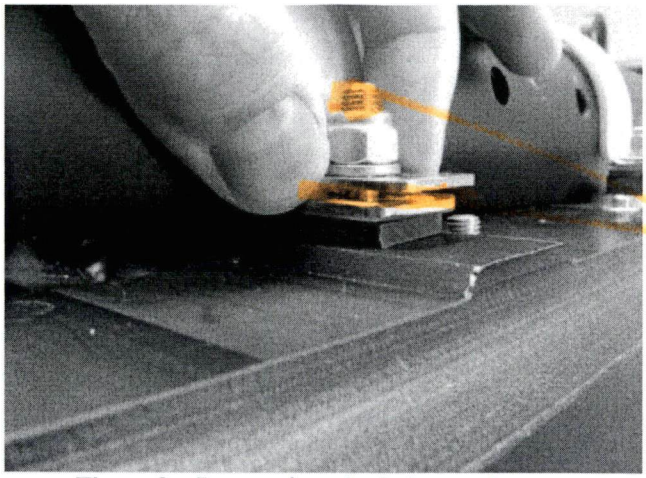


Figure 8 – Jeu causé par les bolts trop longues

3. Ajout de washers

Pour combler le jeu de la Figure 8, des washers sont ajoutés. En même temps, les slotted clip supports sont remplacés par un washer (même épaisseur).

3.1 Enlèvement des Slotted Clip Supports (314-0007-15) et ajout de washers

Selon le dessin :

Clip avant : 1 Slotted Clip Support et 1 Washer AN960-416
Clip centrale : 1 Slotted Clip Support et 1 Washer AN960-416

Après modification :

Clip avant : 4 washers AN960-416
Clip centrale : 5 washers AN960-416

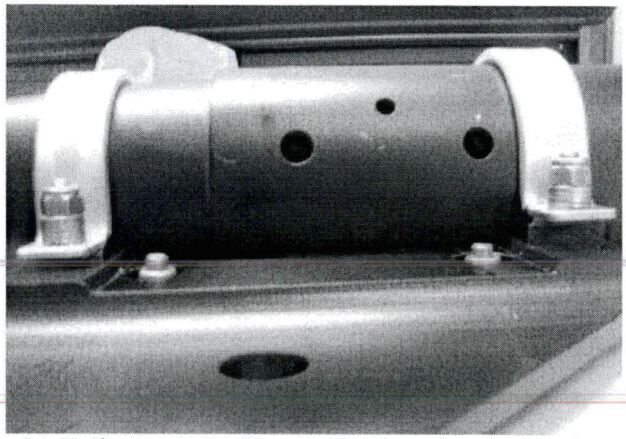


Figure 9 – Enlèvement des Slotted Clip Supports et ajout de washers

Les écrous se serrent bien, il ne reste plus de jeu entre les écrous et les washers. Les washers sont pratiquement à plat sur les clips (jeu à peine observable) et le heat shrink se tasse lors du serrage (Figure 10).

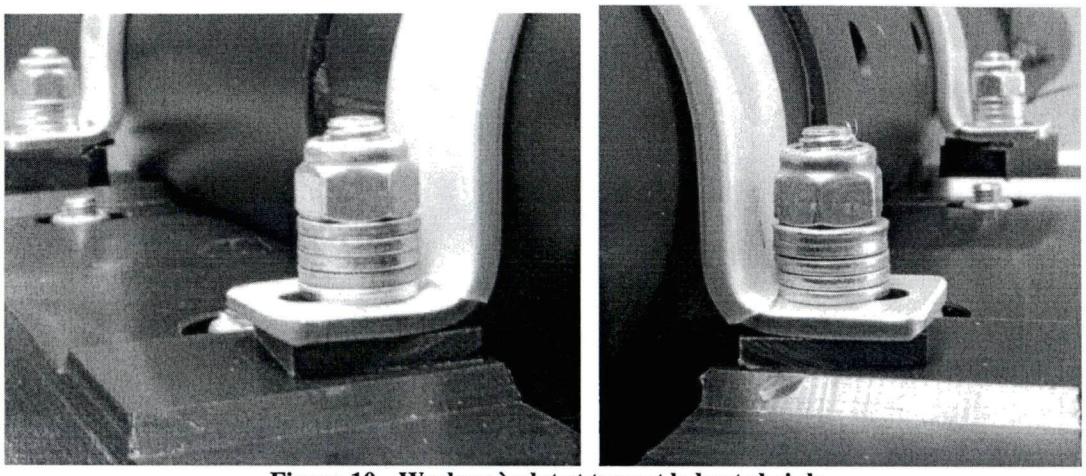


Figure 10 - Washers à plat et tassent le heat shrink

Il n'y a pas de jeu visible entre la clip centrale et le skid. Par contre, un jeu est présent au niveau de la clip avant et arrière.

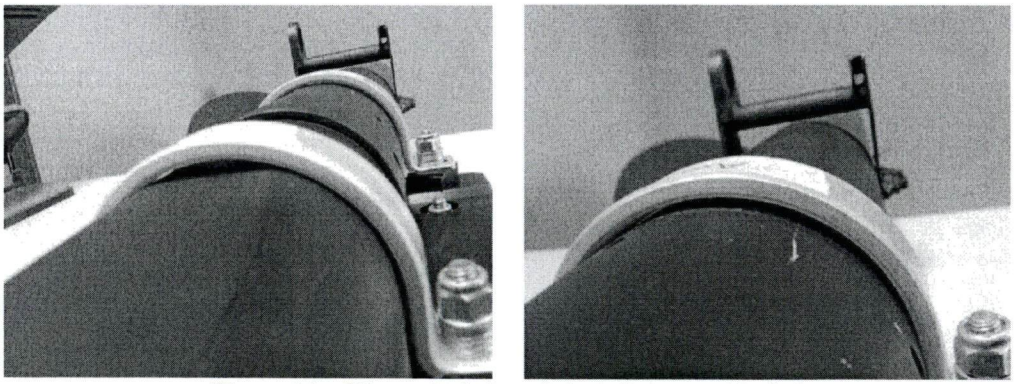


Figure 11 - Clip centrale (gauche) et clip avant (droite)

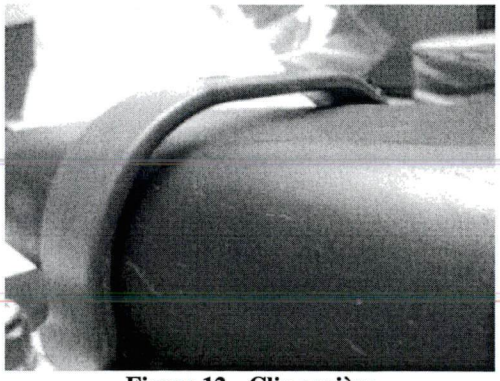


Figure 12 - Clip arrière

3.2 Mesure des jeux entres les clips et le skid

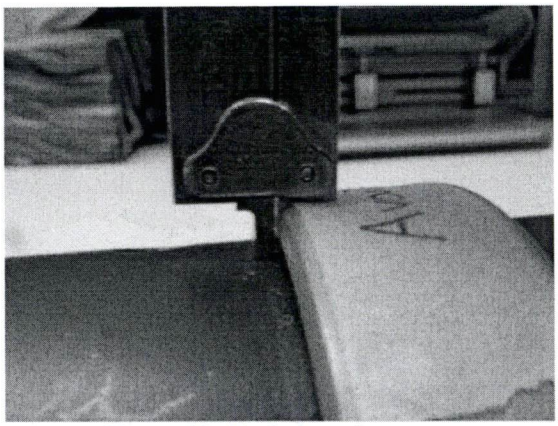


Figure 13 - Technique de mesure

Clip	Ép. clip + 2 shrinks + jeu (in)	Moy. (in)	Ep. moy. Clip + 2 shrinks (in)	Jeu (in)
Avant	0.216 0.211 0.221	0.216	0.160	0.056 (1/16")
Centre	0.170 0.153 0.159	0.161	0.157	0.004
Arrière	Av. : 0.306 0.276 0.305 Ar. : 0.359 0.341 0.364	Av. : 0.296 Ar. : 0.355	0.150	Av. : 0.146 Ar. : 0.205

Il y a un jeu de 1/16" sur la clip avant tandis que la clip centrale a un jeu nul. Pourtant, tel que détaillé à la section 1, ces deux clips sont de la même hauteur. Pour corriger la situation, il faudrait enlever un filler block de 1/16" sur la clip avant.

5. Diminution de la hauteur des filler blocks

5.1 Diminution de 1/16" de la hauteur des filler blocks avants et centraux

Ceci est environ équivalent à utiliser des clips de la bonne hauteur, puisque les clips actuelles sont trop hautes de 3/32". Un washer a été ajouté sur chaque clip puisque les bolts dépassent de 1/16" de plus en enlevant un filler block de 1/16". Les deux clips se serrent bien et il n'y a plus de jeu visible. Néanmoins, la clip arrière est davantage serrée que la clip avant.

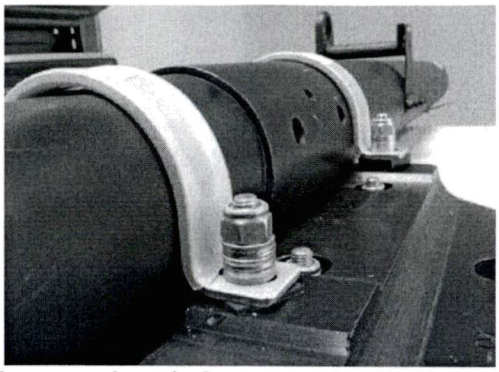


Figure 14 – Serrage qui serait obtenu avec des clips de la bonne hauteur

5.2. Diminution de 1/16" de la hauteur des filler blocks avants

Le filler block de 1/4" est remplacé par un filler block de 1/8" et un de 1/16", ce qui enlève 1/16" à la hauteur. Avec cette modification, les deux clip (avant et centrale) sont serrée de manière égale et il n'y a plus de jeu visible.

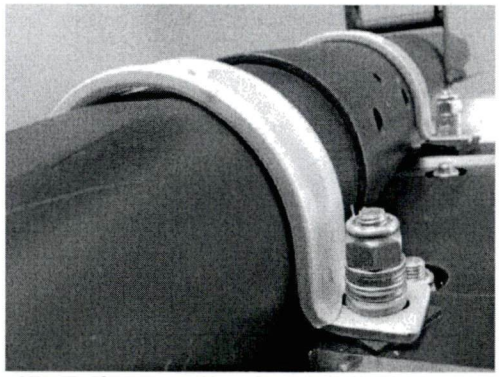


Figure 15 - Enlèvement d'un filler block de 1/16" en avant

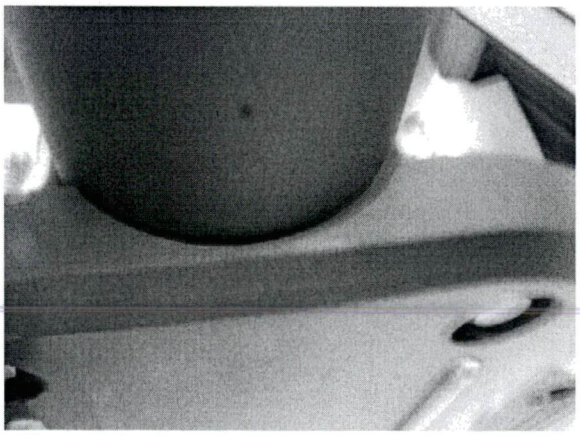


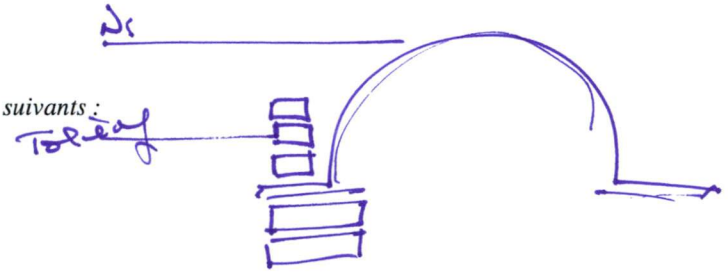
Figure 16 – Skid bien appuyé au fond du bearpaw

6. Concept final

6.1 Avec les clips 3/32" trop hautes, les filler blocks sont les suivants :

Avant : Filler block 1/8" + filler block 1/16"
Central : Filler block 1/16"

6.2 Avec des clips standards, les filler blocks seraient les suivants :



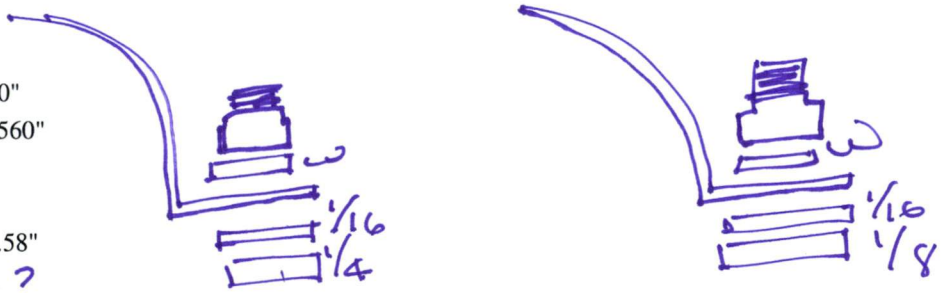
Avant : Filler block 1/4"
Central : Filler block 1/8"

6.3 Avec des clips 1/16" moins hautes pour corriger les problèmes de variabilité lors de la fabrication :

Avant : Filler block 1/4" + filler block 1/16"
Central : Filler block 1/8" + filler block 1/16"

Dans le cas ou une clip serait 1/16" trop haute, il ne suffirait que d'enlever le filler block 1/16" De plus, cela risque de ne pas être nécessaire puisqu'il y a un serrage de 1/16" avec le concept actuel. Avec des clips trop basses, ce serrage deviendrait nul, mais le skid tiendrait bien quand même.

6.4 Correction de la clip arrière (314-0023-15):



Selon le dessin :
Rear filler block : épaisseur = 0.50"
Low U Shaped clip : hauteur = 1.560"

Tel que mesuré :
Low U Shaped Clip : hauteur = 1.58"
Jeu entre clip et skid : 0.146"

Design corrigé :
Jeu désiré : -0.063" (serrage de 1/16", comme pour les deux autres clips)
Hauteur corrigée de la clip = 1.560" – (0.146" + 0.063") = 1.351"
Le nouveau filler block est 1/16" plus bas que le précédent, il faut donc modifier la valeur précédente :
Hauteur corrigée de la clip = 1.351" + 0.063" = 1.413"
Pour laisser un ajustement, un filler block de 1/16" est ajouté, de ce fait, la hauteur finale de la clip est :
Hauteur finale de la clip = 1.413" – 0.063" = 1.351" qu'on arrondie à **1.350"**

Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: July-16-13 8:50 AM
To: Nathalie Barbeau
Subject: RE: BearPaws
Attachments: IMG_2766.JPG

Categories: Cat 1 - Needs important Action

Est-ce que la clip avant est bien serrée lorsque assemblée selon le dessin? Quand je l'ai assemblée à Aviatech, elle était lousse et mon dessin 3D me donne le même résultat. Je serais porté à enlever un filler block de 1/16". Par contre, il se peut que les clips que j'ai en ma possession soient trop hautes (de 3/32" selon mes mesures).

Renaud Berthelot-Richer, ing. jr.
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AERONAUTICAL STRUCTURE DESIGN
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renaudb@ats-ast.com

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Studies have shown trees live longer when they're not cut down.
Avant d'imprimer, pensez à l'environnement.

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 15 juillet 2013 18:00
À : Renaud Berthelot-Richer
Objet : RE: BearPaws

Il faut suivre le dessin.
La photo c'était à demi-monté juste pour voir si on épousait bien en dessous du patin. Surtout ne pas te fier à cette photo pour les fillers.
(Bonne question!)

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
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T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-15-13 4:58 PM
To: Nathalie Barbeau
Subject: BearPaws

Bonjour Nathalie,

Lorsque je regarde la photo en pièce jointe, je constate que les filler blocks sont différents de selon les dessins d'assemblage. Sur la clip avant, il y a un filler block de 1/8" et un de 1/16" alors que sur les dessins, c'est un de 1/4" et un de 1/16". Normalement, est-ce que vous assemblez selon les dessins ou selon la photo en pièce jointe?

Renaud

Renaud Berthelot-Richer, ing. jr.
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Shadows have grown trees have longer when they're not cut down.
Avant d'imprimer, pensez à l'environnement.



Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: July-15-13 9:29 AM
To: Nathalie Barbeau
Subject: RE: Utilité de 314-0007-15

Bonjour Nathalie,

Cette pièce servait de spacer. L'arrondi sous la pièce permettait d'aller s'appuyer dans le rayon de 1/16 de la bracket en U, ce qui offrait une surface plane pour le washer. En réalité, avec le heat shrink et le rayon de 1/8, cette pièce n'a plus vraiment d'utilité.

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Penguins have feathers. They live longer when they're not cut down.
Avant d'imprimer, pensez à l'environnement.

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 12 juillet 2013 17:17
À : Renaud Berthelot-Richer
Cc : Jean-Francois Lemire
Objet : RE: Utilité de 314-0007-15

Renaud,
Je serait enchantée!

Il faudrait toutefois demander à Mirko pourquoi ces slotted clip support avaient été inventés? Il doit y avoir une raison. Je n'étais pas impliquée quand ces pièces ont été créées et j'ai toujours vécu avec elles.
Encore une fois : je tripperais qu'on utilise des filler blocs et des washers seulement. Y a t il un max d'épaisseur autorisé dans ce genre d'empillage de fillers et washers?

Nathalie Barbeau
VP Commercial Affairs

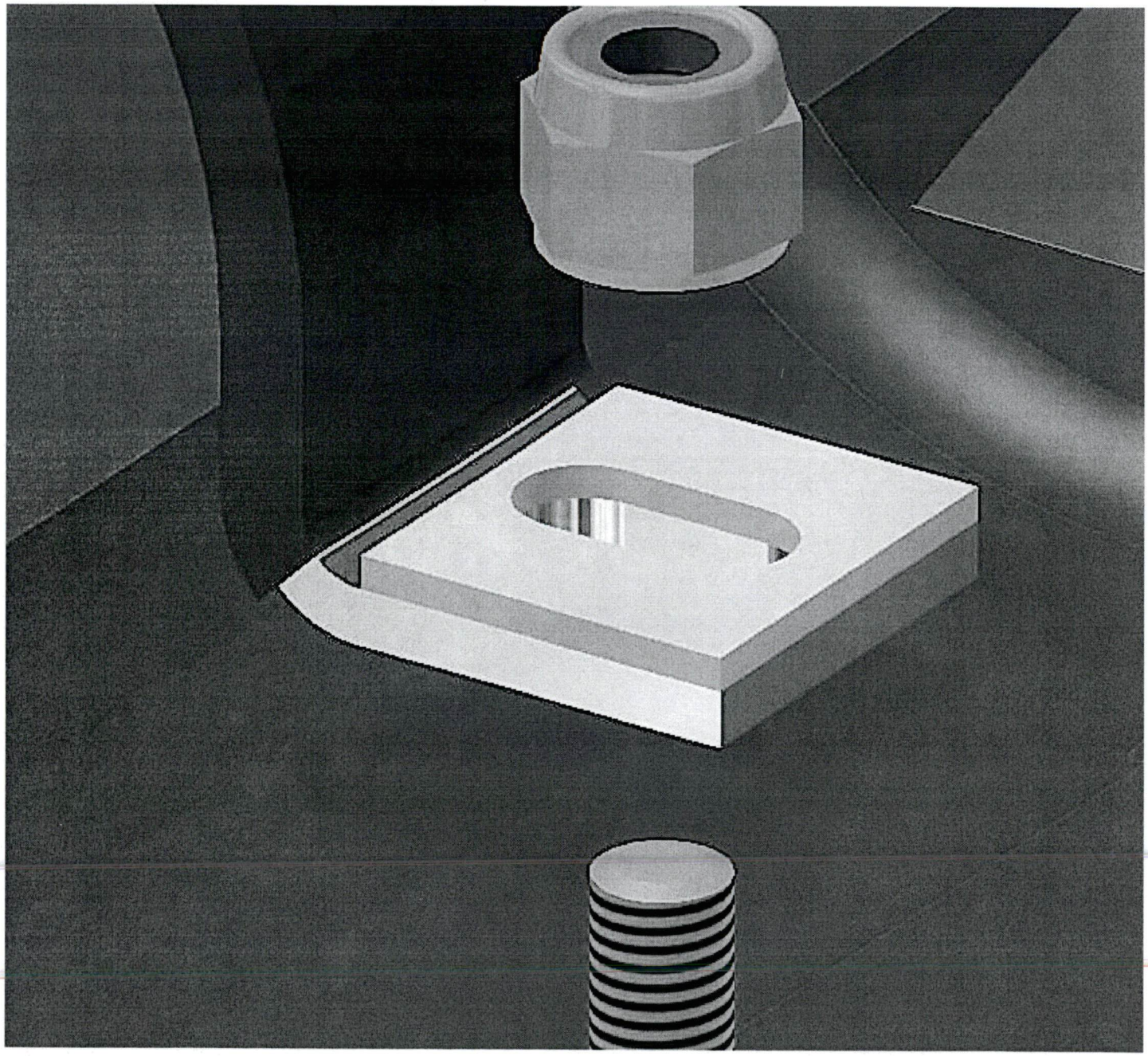
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T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com

info@helitowcart.com
www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-12-13 4:40 PM
To: Nathalie Barbeau
Cc: Jean-Francois Lemire
Subject: Utilité de 314-0007-15

Bonjour Nathalie,

Je ne comprend pas vraiment l'utilité des Slotted clip support (314-0007-15) par rapport à l'utilisation de deux wahser AN960-416 supplémentaires qui totaliseraient la même épaisseur. Voulez-vous que je la remplace par des washers? Sinon, il faudrait que je laisse l'arrondi en dessous car l'espace entre le trou oblon et le bord de la pièce serait trop faible.



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Avant d'imprimer, pensez à l'environnement.

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Nathalie Barbeau
VP Commercial Affairs

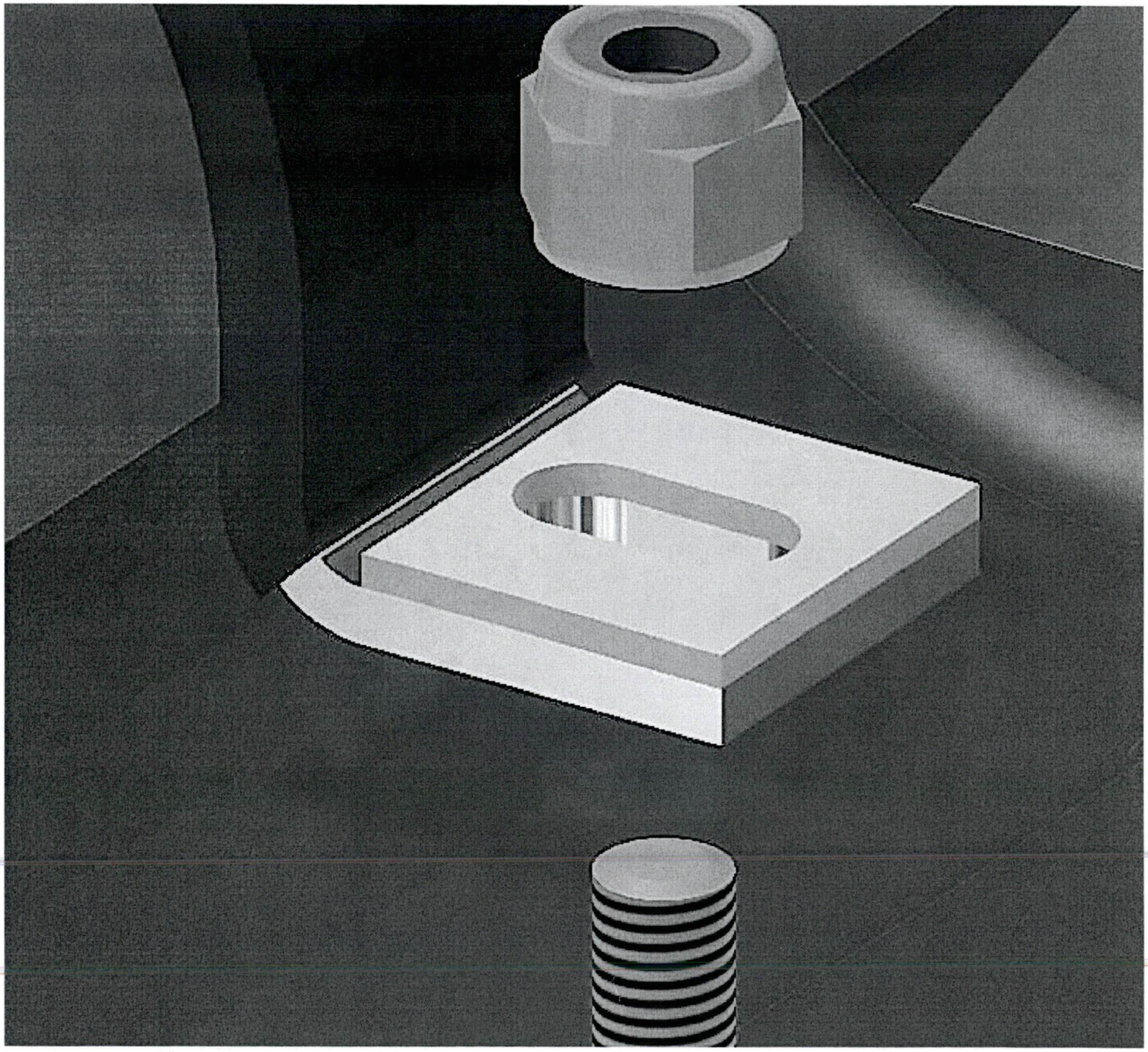
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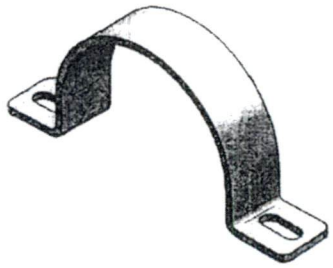
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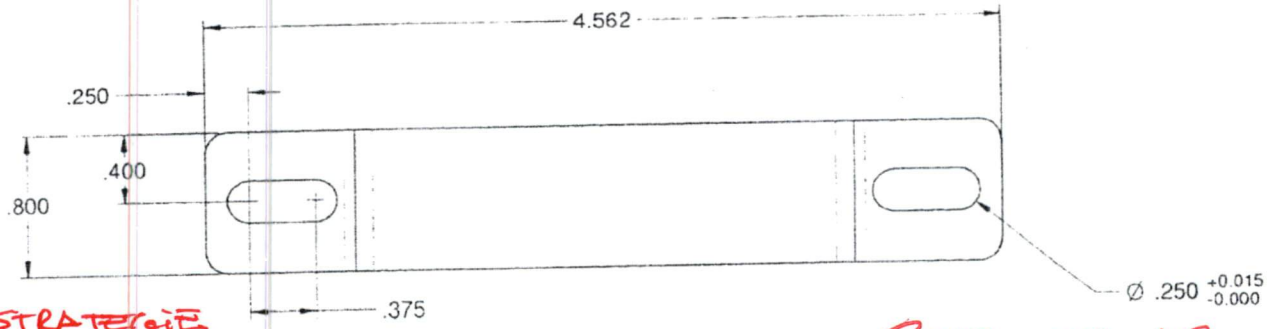
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Studies have shown trees live longer when they're not cut down.
Avant d'imprimer, penser à l'environnement.

- COUPER ARÊTES
- PASSER À L'ACIDE

1/16 = 0,0625
= 0,067



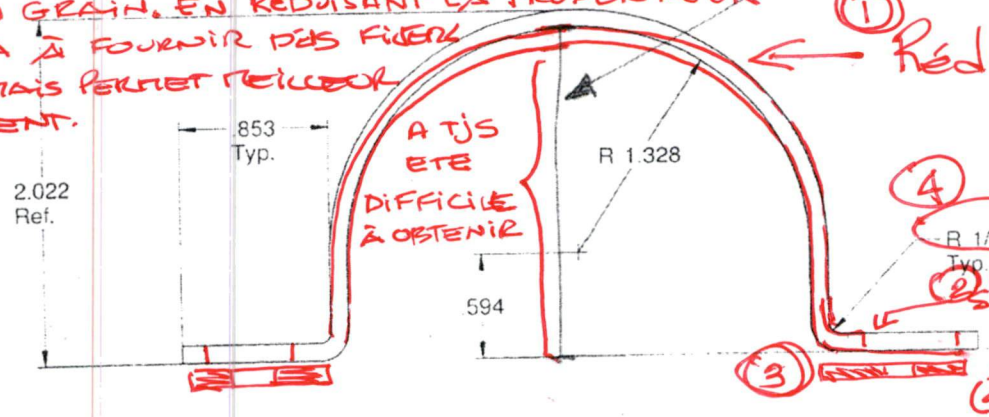


STRATEGIE

POUR ÉLIMINER 20% PERTE ACTUELLE SUR PRODUCTION DES U-CLIPS, ON VA RÉDUIRE SLOTS. ON A TJS PROBL. QUE MATÉRIEL ÉTIRE DANS LA MATRICE ET ON DOIT Δ RAYON À 0,120 POUR PRÉVENIR VULNÉRABILITÉ SI QQ'UN FAIT PAS DANS SENS DU GRAIN. EN RÉDUISANT LA PROFONDEUR ON AURA À FOURNIR DES FILLERS DE PLUS MAIS PERMET MEILLEUR AJUSTEMENT.

2013 07 12
TEL QU'ENTENDU SUITE À CONSULTATION AVEC RENAUD À SÉBASTIEN CORRIVEAU (ATS) (CÔTE INOX)

● VALEUR CRITIQUE
1.922



① Réduction de 1/16" de hauteur

④ Doit être changé à 0,120

② SLOT REDUITE

③ Ajout Filler 1/16" (4 Filler de plus seront requis)

Note :
Raw material specification :
Stainless steel 304 annealed
Sheet gage 12

? Vérifier si rayon est réaliste en 12 ga. Dernier batch LN081202 a été plier holes tot le pli sur la slotte de chaque côté et donc on a eu anneau trop haut.

Rev.	Description	Date	By
R04	.800 was 0.750 - Gage 12 was 14	31-07-06	G.L.
R03	Issue for production	04-04-06	G.L.

TOLERANCES
X ± 1/32"
X.XX ± 0.010"
X.XXX ±
ANGLE ± °
PROJECTION

HELI TOW CART

Vanair inc.
860, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
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www.helitowcart.com

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Titre / Title: Bearpaw - U Shaped clip			Matériel / Material: See Note
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format: A	Échelle / Scale: N/A — Page #: 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR087	Rev #: R04
Approuvé par / Approved by: D. Bataa	Date: (yyyy-mm-dd) 06.08.01	Numéro de pièce / Part Number: 314-0006-15-B	Rev #:

for future scale

Interchg OK

314-0006-15-B

U-Clips, Slotted Clip Support & 1/16" filler

Issues:
1) 3/32" filler has never existed as such, the supplier has always provided 1/16" because the 3/32" is not available. So I wish to change all references to the 3/32" and change it to the true value it has always been: 1/16" thickness.

2) The U-Clips have always been hard to manufacture and there was 20% of them that were lost in production because the tip slips in the bending matrix and many ended up with the U too deep. This can be an issue because then the user would end up with a slack tube inside the U-clip without any way to adjust. So we looked into this to see what can be done.

a) Can we make the slot shorter?
Yes we can but not by much as recommended by Arnaud (I can't remember the reason but it was a good one). So he is going to shorten it. This will help but it is not going to be sufficient to eliminate the issue with the U depth so we then need to look at changing the angle.

b) Can we change bending radius?
We considered changing the angle but this is not something we can do. We need to enlarge the angle to 0.120 instead of its current 0.06 (1/16"), this will ensure that should a fabricator not make the part on the same grain as the original material the part will not crack. So, clearly we want all our radiuses to be as recommended by manufacturer, that is same thickness as material. So it needs to be 0.120. (1/8).
Up to now we have had no problem because Sebastien Corriveau at Coté Inox has made sure the parts were always made in the correct direction and so would not be vulnerable. However we wish to take the opportunity to make it as conservative as possible while we are at it.

So this angle has not helped us with the issue with U depth because for one thing a wider radius makes the part slip even more. So Renaud suggested to reduce the height of the U. See next element.

3) Must we reduce height of U?
Renaud suggested to Sébastien Corriveau that we reduce the height of the U-clip by 1/16" to make it less deep. This way if the part slips while manufacturing there is still sufficient margin for the user to still attach his skid tightly. The only compromise then is the need to supply more filler blocks of 1/16" thick.(4 of them) This solution makes sense and has provided Sebastien with a reasonable solution that gives him a lot more capability to manufacture without rejecting 20% of his production.

NB
2013 07 12

Nathalie Barbeau

From: Sebastien Corriveau [scorriveau@coteinox.com]
Sent: July-12-13 2:02 PM
To: Nathalie Barbeau
Subject: RE: Liste des besoins de Mise à jour des dessins de PIECES EN ACIER INOX / BP4466

Bonjour Nathalie,

effectivement ce n'est pas la norme, le risque de fissures est réelle mais quaise nul étant donné que nous ne plions pas parallèle au sens du grain,

comme nous plions la ligne de pliage perpendiculaire au sens du grain, on peut selon ma charte plier 5/64", étant donné que la matière réagie un peu avec un effet ressort (springback)

le rayon 1/16" au pliage donne autour de 5/64" en réelle.

GROUPE CÔTÉ INOX

Sébastien Corriveau
Estimateur et chargé de projets
302, route 279, Saint-Lazare (Québec) G0R 3J0
T 418 883-2702 | F 418 883-2703
groupecoteinox.com

CWB CERTIFIÉE CSA W47.1 — nqa ISO 9001 ENREGISTRÉ

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 12 juillet 2013 13:51
À : Sebastien Corriveau
Cc : nbarbeau@helitowcart.com
Objet : FW: Liste des besoins de Mise à jour des dessins de PIECES EN ACIER INOX / BP4466

Sébastien,
C'est toi l'expert... svp voir le message de la firme d'ingénierie ci-bas et m'appeler.
Merci

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
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F: +1.418.836.4575
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info@helitowcart.com
www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-12-13 12:59 PM

To: Nathalie Barbeau
Subject: RE: Liste des besoins de Mise à jour des dessins de PIECES EN ACIER INOX / BP4466

Bonjour Nathalie,

J'ai bien reçu vos deux derniers courriels. Concernant le courriel de ce matin, il n'est normalement pas recommandé de plier du stainless gage 12 avec un rayon de moins de 0.120 in à cause des possibilités de fissures. Pouvez-vous relancer votre fournisseur à ce sujet pour avoir son avis?

Renaud

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 12 juillet 2013 11:56
À : Renaud Berthelot-Richer
Cc : Jean-Francois Lemire
Objet : FW: Liste des besoins de Mise à jour des dessins de PIECES EN ACIER INOX / BP4466

Renaud,
Puisqu'on met à jour tous les dessins pour changer les cartouches et refaire les originaux pour ces pièces, je veux en profiter pour faire les changements suivants :

314-0006-15 / Le U clip pour BP4466 :

1) Réduire la taille de la slotte afin d'aider la production car la pièce a tendance à s'étirer au pliage et alors on a des pièces qui deviennent avec le U trop profond et mes skids sont alors slacks. Mon fournisseur me suggère de réduire la slotte de 3/16 pour laisser plus de matériel au point de pliage et éviter que la pièce s'étire. Voir les photos attachées pour te montrer à quoi cela ressemble et la marge que l'on a pour réduire la dimension de la slotte.
2) Ajouter une mention : "Remove all burrs and sharp edges 1/64'' max. Ensure egdes are smooth."

314-0023-15 / Le LOW U clip pour BP4466 :

1) Changer le rayon de 120 pour 1/16 (moins difficile à plier selon fournisseur)
2) Réduire la taille de la slotte comme pour pièce précédente.
3) Ajouter à la fin de la mention « Remove all burrs and sharp edges 1/64'' max. la mention « Ensure edges are smooth ».
4) Mettre une note sur la cote de profondeur du U clip : 1.560 « Critical Dimension »

314-0007-15 / Le SLOTTED CLIP SUPPORT pour tous nos bearpaws :
Il n'a jamais bien fitté.(voir photos)

1) Je suggère d'en profiter pour réduire la taille de la slotte et réduire sa dimension pour mieux fitter sur le dessus du U clip.
2) Je suggère d'éliminer la courbe de 1/16 en dessous car on a pas d'impact sur le shrink rendu là et on pourrait avoir un rebord droit (ce qui couterait beaucoup moins cher selon mon fournisseur).

Nathalie Barbeau
VP Commercial Affairs

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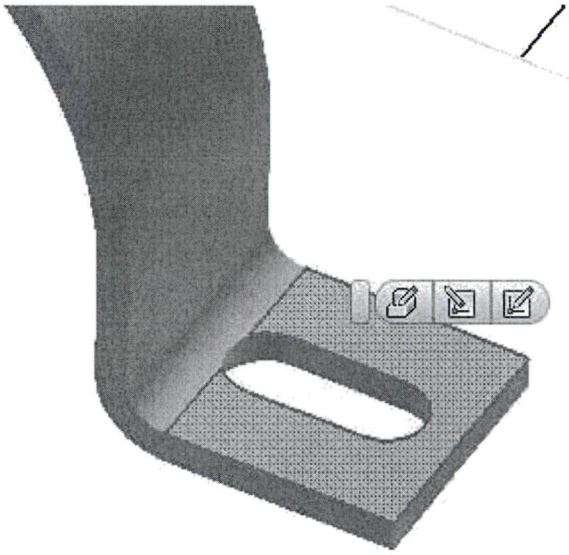
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: July-12-13 2:00 PM
To: Nathalie Barbeau
Cc: Jean-Francois Lemire
Subject: RE: Liste des besoins de Mise à jour des dessins de PIECES EN ACIER INOX / BP4466

Bonjour Nathalie,

Voici ce que ça donne avant et après la correction. Je ne peux pas vraiment réduire plus car ça risquerait ne ne pas pouvoir s'assembler pour les trous du centre.





Renaud

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 12 juillet 2013 13:50
À : Renaud Berthelot-Richer
Objet : RE: Liste des besoins de Mise à jour des dessins de PIECES EN ACIER INOX / BP4466

Ok!

Nathalie Barbeau
VP Commercial Affairs

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info@helitowcart.com
www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-12-13 1:47 PM
To: Nathalie Barbeau
Subject: RE: Liste des besoins de Mise à jour des dessins de PIECES EN ACIER INOX / BP4466

Bonjour Nathalie,

Pour la longueur des trous oblongs, je ne pourrai pas les réduire d'exactement 3/16 pouce car les trous au centre du BearPaw sont plus rapprochés que ceux à l'avant. Je vais néanmoins les réduire autant que possible.

Renaud

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 12 juillet 2013 11:56
À : Renaud Berthelot-Richer
Cc : Jean-Francois Lemire
Objet : FW: Liste des besoins de Mise à jour des dessins de PIECES EN ACIER INOX / BP4466

Renaud,
Puisqu'on met à jour tous les dessins pour changer les cartouches et refaire les originaux pour ces pièces, je veux en profiter pour faire les changements suivants :

314-0006-15 / Le U clip pour BP4466 :

1) Réduire la taille de la slotte afin d'aider la production car la pièce a tendance à s'étirer au pliage et alors on a des pièces qui deviennent avec le U trop profond et mes skids sont alors slacks. Mon fournisseur me suggère de réduire la slotte de 3/16 pour laisser plus de matériel au point de pliage et éviter que la pièce s'étire. Voir les photos attachées pour te montrer à quoi cela ressemble et la marge que l'on a pour réduire la dimension de la slotte.
2) Ajouter une mention : "Remove all burrs and sharp edges 1/64'' max. Ensure egdes are smooth."

314-0023-15 / Le LOW U clip pour BP4466 :

1) Changer le rayon de 120 pour 1/16 (moins difficile à plier selon fournisseur)

2) Réduire la taille de la slotte comme pour pièce précédente.
3) Ajouter à la fin de la mention « Remove all burrs and sharp edges 1/64'' max. la mention « Ensure edges are smooth ».
4) Mettre une note sur la cote de profondeur du U clip : 1.560 « Critical Dimension »

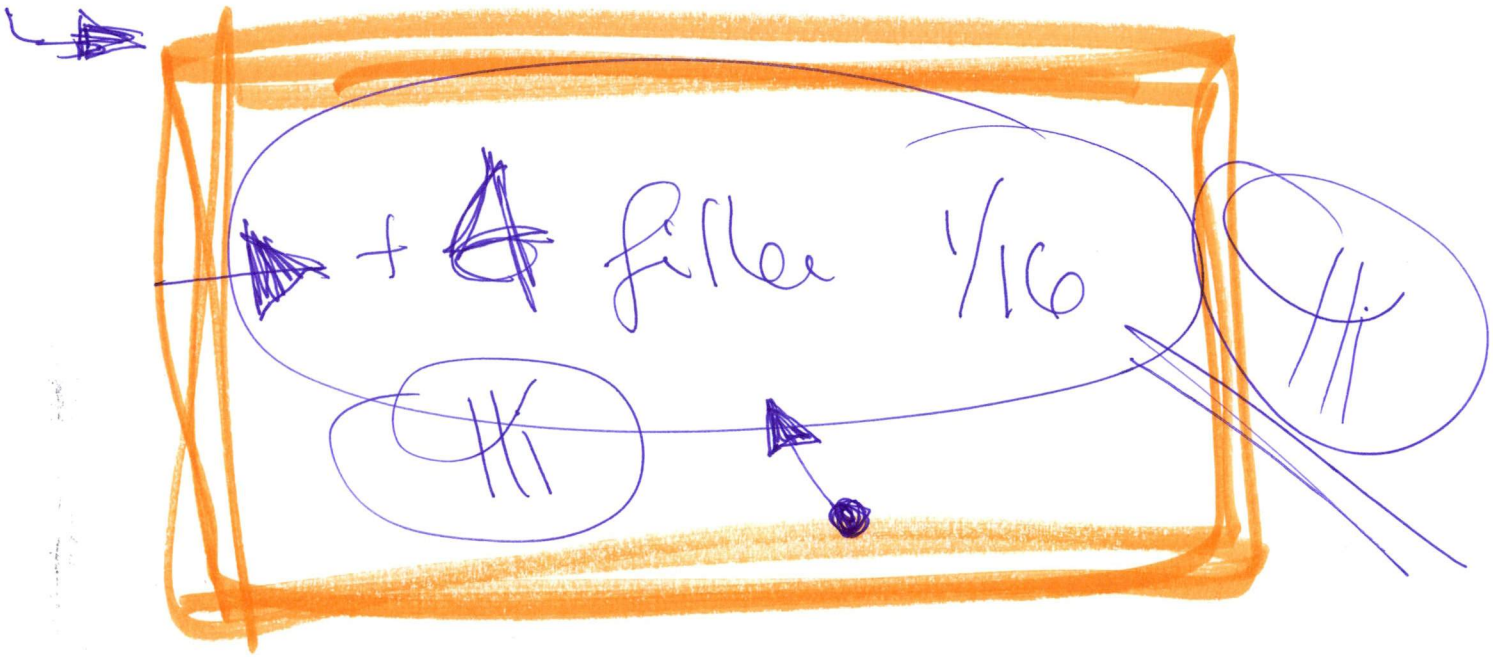
314-0007-15 / Le SLOTTED CLIP SUPPORT pour tous nos bearpaws :
Il n'a jamais bien fitté.(voir photos)

1) Je suggère d'en profiter pour réduire la taille de la slotte et réduire sa dimension pour mieux fitter sur le dessus du U clip.
2) Je suggère d'éliminer la courbe de 1/16 en dessous car on a pas d'impact sur le shrink rendu là et on pourrait avoir un rebord droit (ce qui couterait beaucoup moins cher selon mon fournisseur).

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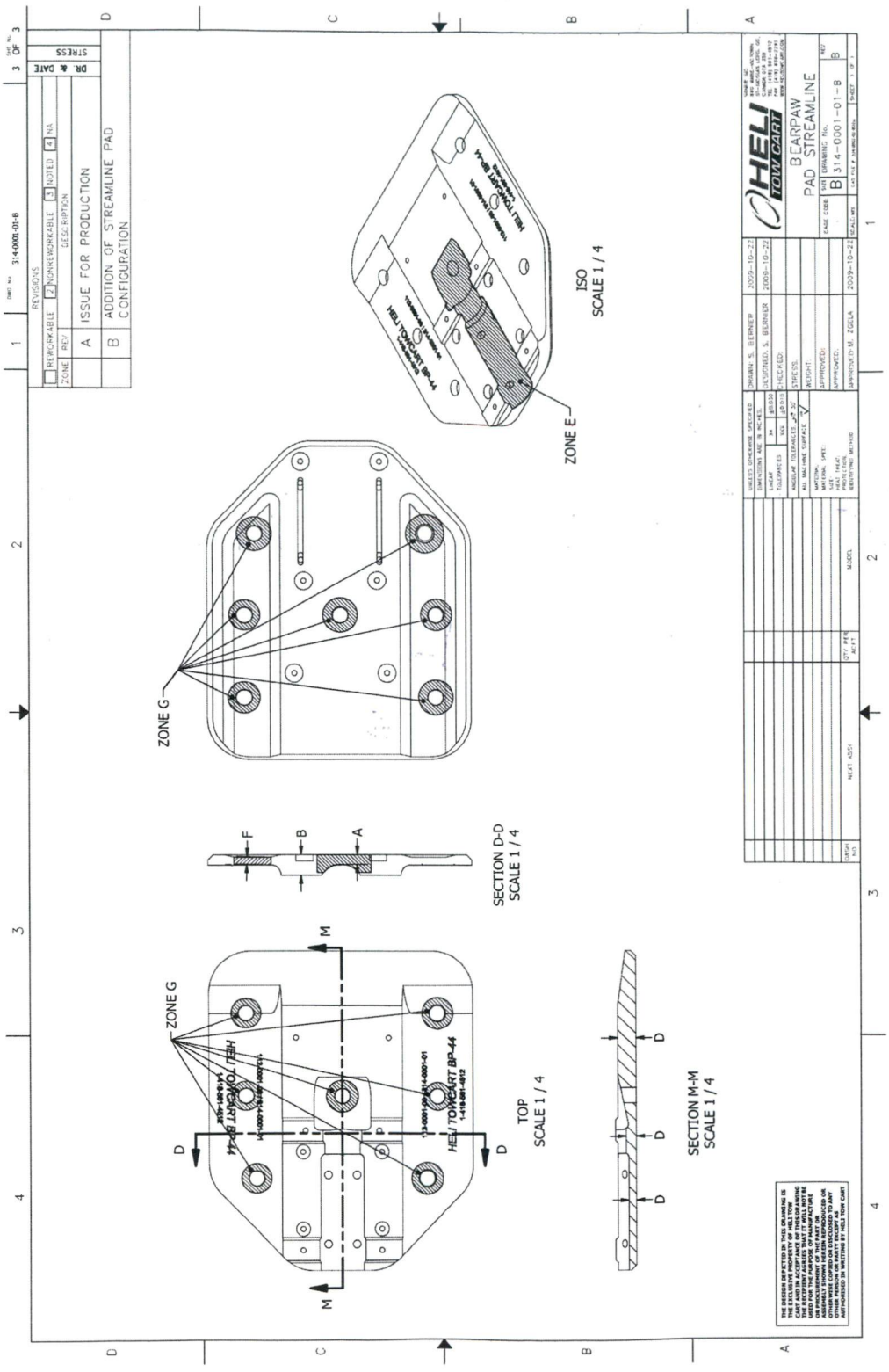
→ Cell Reward



1/16 = 0,06

→ 1/8 = 0,120

0,069



Tel: 1-418-561-4512, Fax: 1-418-836-4575, 877 A Alphonse-Desrochers, Saint-Nicolas, Levis, Quebec, Canada G7A 5K6.
www.helitowcart.com info@helitowcart.com

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: July-12-13 3:28 PM
To: 'Renaud Berthelot-Richer'
Cc: 'Jean-Francois Lemire'
Subject: RE: Filler block 3/32 ou 1/16"?

Renaud,
Un jour j'ai découvert que le fournisseur de ces fillers m'avait toujours fourni du 1/16 (0.069) et que le 3/32 n'est pas disponible!
Je comptais sur cette mise à jour majeure pour remettre les pendules à l'heure.
Tu remarqueras que partout j'ai modifié le texte pour voir 1/16 au lieu de 1/32 et j'ai aussi modifié le dessin (la copie annotée que je t'ai scannée).
Je voudrais donc comme tu peux comprendre rester à la vérité qui est 1/16''.

Si problème appelle moi!

Nathalie Barbeau
VP Commercial Affairs

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nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-12-13 3:09 PM
To: Nathalie Barbeau
Subject: Filler block 3/32 ou 1/16"?

Bonjour Nathalie,

Il faudrait seulement 4 filler blocks de 1/16 " de plus. Le Low U Support arrière est déjà correct. Aussi, est-ce que vous avez des filler blocks de 1/16 " et de 3/32 "? J'ai seulement le dessin pour les 3/32" et il n'y a pas de filler block 1/16" dans l'assemblage actuel du Bear Paw.

Renaud

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: July-12-13 12:51 PM
To: 'Renaud Berthelot-Richer'
Cc: 'Jean-Francois Lemire'
Subject: FW: Dessins de pièces de Bearpaws
Attachments: 4595_001.pdf.pdf; 314-0023-15-A BearPaw 44 Low U Shaped Rear Clip (rear).bmp; 314-0023-15-A_R00.SLDDRW; 314-0023-15-A_R00.SLDPRT; 314-0023-15-A_R00-GAB.DWG

Voici les notes de notre fournisseur de pièces en acier inox.
Svp mettre leur note qui a été encerclée en rouge à la suite de la note en anglais (habituellement je ne mets pas les notes en français mais je ferai une exception ici pour les aider).
Svp donc ajouter aussi à la note en anglais de couper les arètes à 1/64 de passer à l'acide. J'imagine que cela se dit ainsi : « Apply Acid Treatment »

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
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T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

From: Sebastien Corriveau [mailto:scorriveau@coteinox.com]
Sent: July-12-13 11:44 AM
To: Nathalie Barbeau
Subject: RE: Dessins de pièces de Bearpaws

Bonjour Nathalie

voici dans le pdf mes notes et j'ai cru comprendre que tu n'avais pas les originaux, donc les voici

merci et bonne fin de semaine

GROUPE CÔTÉ INOX

Sébastien Corriveau
Estimateur et chargé de projets
302, route 279, Saint-Lazare (Québec) G0R 3J0
T 418 883-2702 | F 418 883-2703
groupecoteinox.com

CWB CERTIFIÉE CSA W47.1
nqa ISO 9001 ENREGISTRÉ

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 11 juillet 2013 16:40

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: July-12-13 12:10 PM
To: 'Renaud Berthelot-Richer'
Cc: 'Jean-Francois Lemire'
Subject: Pièces en UHMW faites par AMEC / BP4466

Renaud,
Je viens de parler à mon contact chez Amec et ils n'ont pas besoin de faire ajouter des notes ou changer des cotes sur les dessins 314-0001-15 pad de 4466, ni 314-0022-15 filler block.
Donc on peut faire les modifs que je t'ai demandées seulement. (voir les documents scannés hier).

Nathalie Barbeau
VP Commercial Affairs

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nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

À : Sebastien Corriveau
Objet : Dessins de pièces de Bearpaws

Sébastien,
Je fais refaire mes dessins par notre firme d'ingénierie.
J'aimerais que tu me donnes tes notes sur ce qui doit être ajouté ou modifié sur nos pièces de U clip de BP44.
J'avais noté que les rayons actuels ne sont pas réalistes avec cette épaisseur donc je crois qu'on devrait ajuster?

Svp donne moi un coup de fil vendredi
Merci

Nathalie Barbeau
VP Commercial Affairs

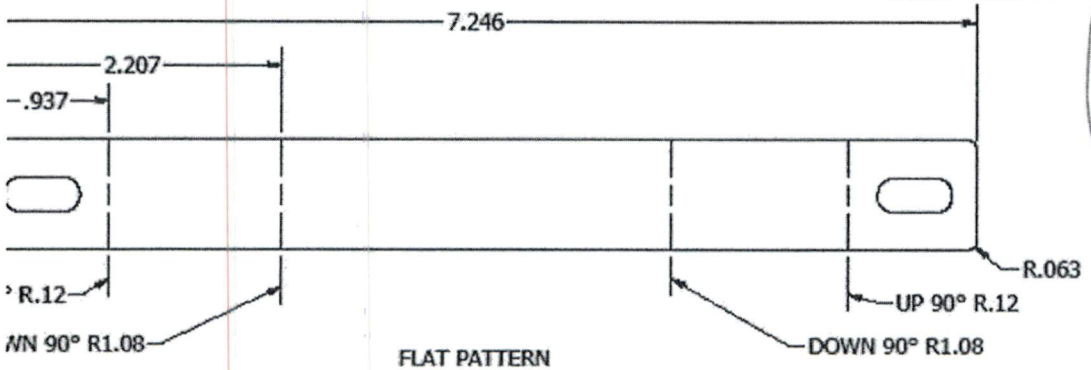
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4 | 3 | 2 | 1 — DWG No. 314-0023-15-A

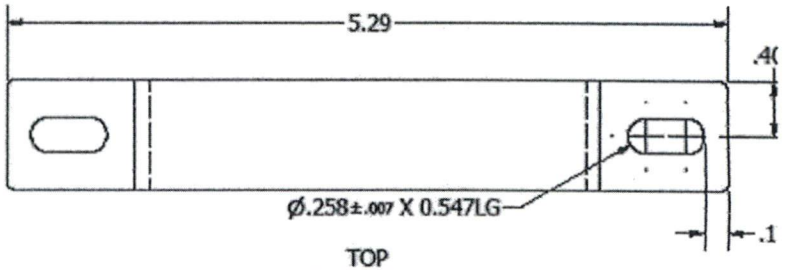
REVISIONS		
☐ REWORKABLE ☐2 NONREWORKABLE ☐3 NOTED ☐4 NA		
ZONE	REV	DESCRIPTION
	A	ISSUE FOR PRODUCTION

OTES:
. INTERPRET DRAWING IN ACCORDANCE WITH ANSI Y14.5M 1994. DIMENSIONS AND TOLERANCING
. REMOVE ALL BURRS AND SHARP EDGES 1/64" MAX
. FILL CLIENT INSPECTION FORM

ÉBAVURER TOUT LE TOUR R1/64"
PLIER, ROULER GABARIT G118 B2
PASSER DANS L'ACIDE

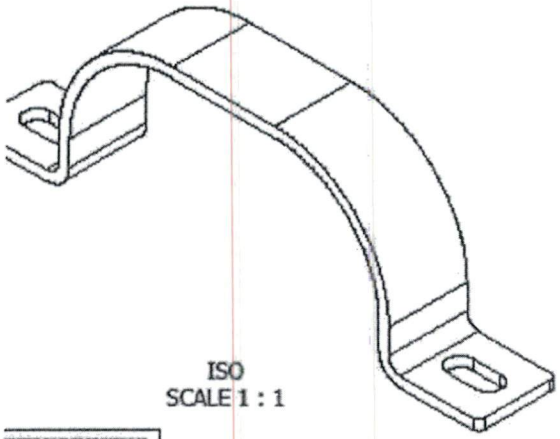


FLAT PATTERN
SCALE 1 : 1

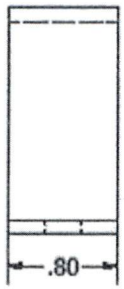


TOP
SCALE 1 : 1

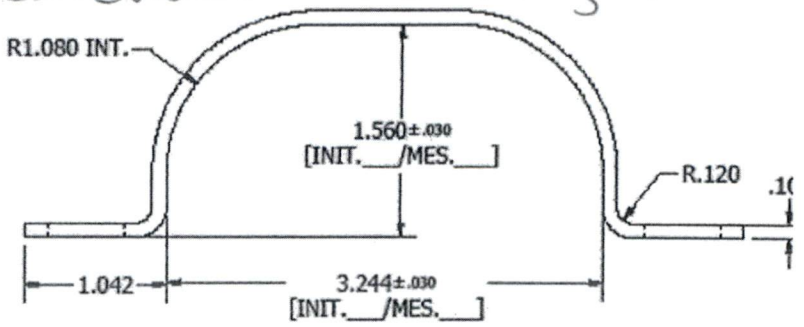
J'aime ce type de note elle est évidente et en français



ISO
SCALE 1 : 1



LEFT
SCALE 1 : 1



FRONT
SCALE 1 : 1

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
1	1	314-0023-15-A	BEARPAW - U SHAPED CLIP REAR	STEEL

DASH NO	NEXT ASSY	QTY PER ACFT	MODEL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
LINEAR TOLERANCES: XX ±0.030, XXX ±0.010
ANGULAR TOLERANCES: ±0° 30'
ALL MACHINE SURFACE 125
MATERIAL: MATERIAL SPEC: SIZE: HEAT TREAT: FINISH: IDENTIFYING METHOD:

DRAWN: S. BERNIER	15/04/2010	
DESIGNED: S. BERNIER	15/04/2010	
CHECKED:		
STRESS:		
WEIGHT:		
APPROVED:		
APPROVED:		
APPROVED: M. ZOELA	15/04/2010	

HELI TOW CART

BEARPAW
LOW U SHAPED

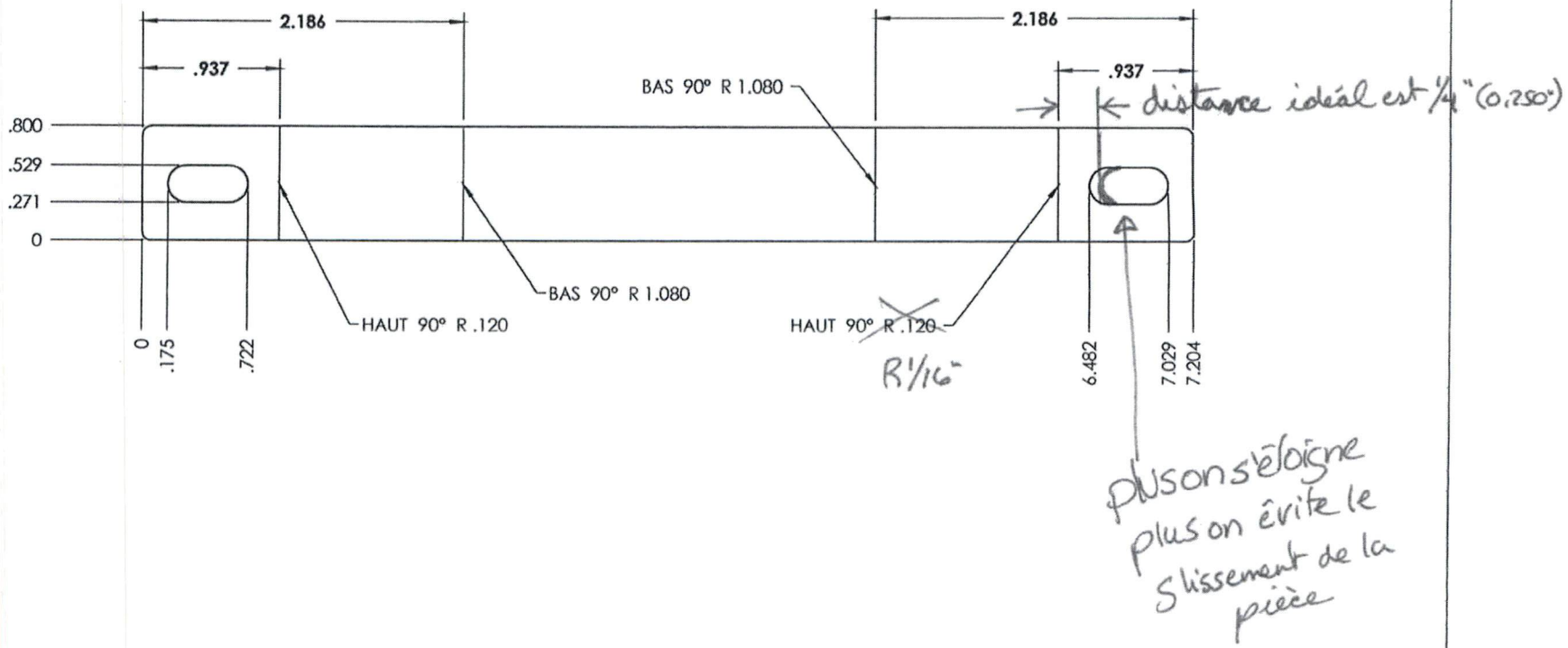
CAGE CODE: · SIZE: B DRAWING No. 314-0023-15

SCALE: NTS

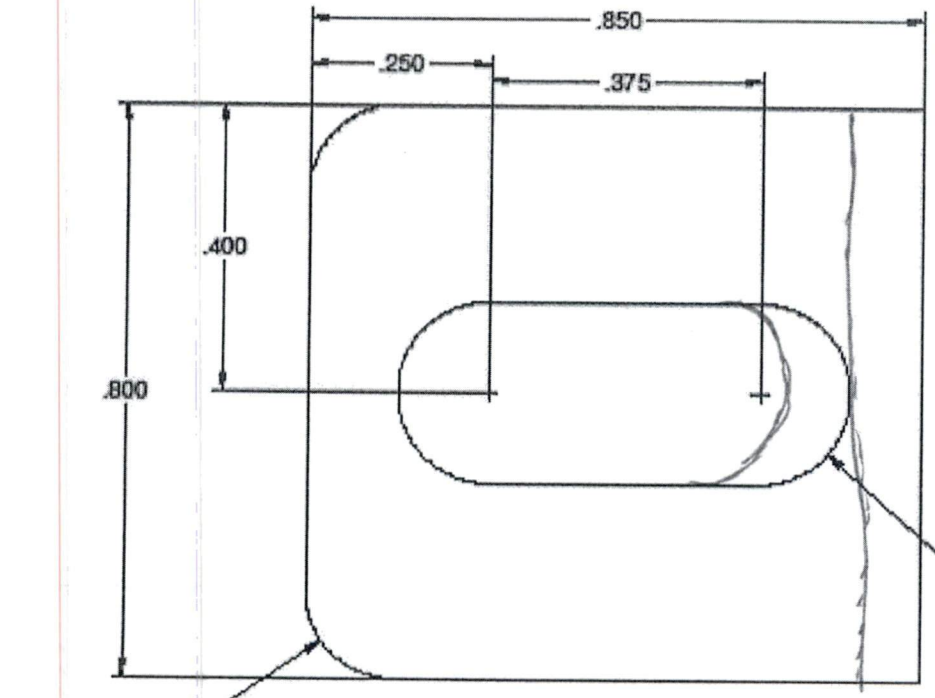
PECTED IN THIS DRAWING IS PROPERTY OF HELI TOW CEPTANCE OF THIS DRAWING AGREED THAT IT WILL NOT BE PURPOSE OF MANUFACTURE INT OF THE PART OR NOR HEREIN REPRODUCED OR ISED OR DISCLOSED TO ANY OR PARTY EXCEPT AS WRITTEN BY HELI TOW CART

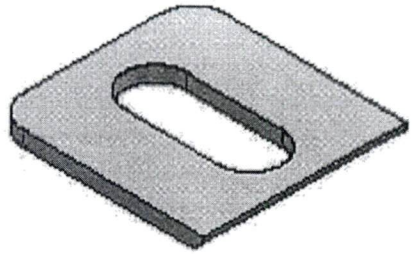
4 | 3 | 2 | 1

NO.	MATÉRIEL	ÉPAISSEUR	QTE / TOT.
1	HRS	0.105	62



GROUPE CÔTÉ INOX	TOLÉRANCE (SI NON SPÉCIFIÉES) X.X = ±0.100" X.XX = ±0.010" X.XXX = ±0.005" FRACTION = ±1/32" ANGLE = ±1°	CE DESSIN EST LA PROPRIÉTÉ DE CÔTÉ INOX TOUS DROITS RÉSERVÉS THIS DRAWING IS THE PROPERTY OF CÔTÉ INOX ALL RIGHTS RESERVED	RESPONSABLE: G.C. DESSINÉ PAR: S.P. VÉRIFIÉ PAR:	CLIENT: **HELI TOW CART** PROJET: 11-0568-01 NOM PIÈCE / ASSEMBLAGE: BEAR PAW LOW U SHAPED CLIP	TYPE DE DÉCOUPE: LASER DESSIN NO: **314-0023-15-A_R00** REV: 00 ECHELLE: 1:2 DATE: 2011-02-22	Page 1 de 3	





PASSER DANS L'ACIDE

revalider
si longueur peut
changer en lien
avec les autres
modifications

scénario hypothétique

Note :
Raw material specification :
Stainless steel 304 annealed
Sheet gage 16

Rev.	Description	Date	By
R04	0.800 was 0.750 - 0.850 was 0.875	31-07-06	G.L.
R03	Issue for production	04-04-06	G.L.

HELI TOW CART

Vanair Inc.
800, Marie-Victorin
St-Nicolas, Lévis (Québec)
Canada, G7A 3S9
Tél. : (418) 561-4512
Fax : (418) 836-2291
www.helitowcart.com

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TOLERANCES
1/X ± 1/32"
XXX ± 0.010"
X.XXX ±
ANGLE ± 1°
PROJECTION

Titre / Title: Bearpaw - Slotted clip support			Matériel / Material: SEE NOTE	
Dessiné par / Drawing by: G. Lapointe	Date: (yyyy-mm-dd) 2006-04-24	Format: A	Échelle / Scale: 4 : 1	Page #: 1 de 1
Vérifié par / Checked by:	Date: (yyyy-mm-dd)	Numéro dessin / Drawing Number: VNR089		Rev.#: R04
Approuvé par / Approved by:	Date: (yyyy-mm-dd)	Numéro de pièce / Part Number: 314-0007-15-B		Rev.#:

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: July-12-13 11:47 AM
To: 'Renaud Berthelot-Richer'
Cc: 'Jean-Francois Lemire'
Subject: Liste des besoins de Mise à jour des dessins de PIECES EN ACIER INOX / BP4466
Attachments: DSC09002.JPG; DSC09001.JPG; DSC09000.JPG

Renaud,
Puisqu'on met à jour tous les dessins pour changer les cartouches et refaire les originaux pour ces pièces, je veux en profiter pour faire les changements suivants :

314-0006-15 / Le U clip pour BP4466 :

1) Réduire la taille de la slotte afin d'aider la production car la pièce a tendance à s'étirer au pliage et alors on a des pièces qui deviennent avec le U trop profond et mes skids sont alors slacks. Mon fournisseur me suggère de réduire la slotte de 3/16 pour laisser plus de matériel au point de pliage et éviter que la pièce s'étire. Voir les photos attachées pour te montrer à quoi cela ressemble et la marge que l'on a pour réduire la dimension de la slotte.
2) Ajouter une mention : "Remove all burrs and sharp edges 1/64'' max. Ensure egdes are smooth."

314-0023-15 / Le LOW U clip pour BP4466 :

1) Changer le rayon de 120 pour 1/16 (moins difficile à plier selon fournisseur)
2) Réduire la taille de la slotte comme pour pièce précédente.
3) Ajouter à la fin de la mention « Remove all burrs and sharp edges 1/64'' max. la mention « Ensure edges are smooth ».
4) Mettre une note sur la cote de profondeur du U clip : 1.560 « Critical Dimension »

314-0007-15 / Le SLOTTED CLIP SUPPORT pour tous nos bearpaws :
Il n'a jamais bien fitté.(voir photos)

1) Je suggère d'en profiter pour réduire la taille de la slotte et réduire sa dimension pour mieux fitter sur le dessus du U clip.
2) Je suggère d'éliminer la courbe de 1/16 en dessous car on a pas d'impact sur le shrink rendu là et on pourrait avoir un rebord droit (ce qui couterait beaucoup moins cher selon mon fournisseur).

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

Nathalie Barbeau

From: Renaud Berthelot-Richer [renaudb@ats-ast.com]
Sent: July-12-13 3:31 PM
To: Nathalie Barbeau
Subject: RE: Filler block 3/32 ou 1/16"?

Filler 1/16

Parfait!

Renaud Berthelot-Richer, ing. jr.
CONCEPTION STRUCTURE AÉRONAUTIQUE
AERONAUTICAL STRUCTURE DESIGN
T: 819.601.8049 #211
renaudb@ats-ast.com

Aviatech
SERVICES TECHNIQUES INC.
TECHNICAL SERVICES INC.

2595 St-Olivier
Trois-Rivières, Qc, Canada
G9A 4G1

F: 819.377.7928
www.ats-ast.com

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This email is confidential and protected. The sender does not waive the rights and obligations attached to it. Any distribution, use or copying of this message or the information it contains by other than (the) designated recipient(s) is prohibited. If you have mistakenly received this email, please notify the sender immediately.

Studies have shown trees live longer when they're not cut down.
Avant d'imprimer, pensez à l'environnement.

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 12 juillet 2013 15:28
À : Renaud Berthelot-Richer
Cc : Jean-Francois Lemire
Objet : RE: Filler block 3/32 ou 1/16"?

Renaud,
Un jour j'ai découvert que le fournisseur de ces fillers m'avait toujours fourni du 1/16 (0.069) et que le 3/32 n'est pas disponible!
Je comptais sur cette mise à jour majeure pour remettre les pendules à l'heure.
Tu remarqueras que partout j'ai modifié le texte pour voir 1/16 au lieu de 1/32 et j'ai aussi modifié le dessin (la copie annotée que je t'ai scannée).
Je voudrais donc comme tu peux comprendre rester à la vérité qui est 1/16''.

Si problème appelle moi!

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com

info@helitowcart.com
www.helitowcart.com

From: Renaud Berthelot-Richer [mailto:renaudb@ats-ast.com]
Sent: July-12-13 3:09 PM
To: Nathalie Barbeau
Subject: Filler block 3/32 ou 1/16"?

Bonjour Nathalie,

Il faudrait seulement 4 filler blocks de 1/16 " de plus. Le Low U Support arrière est déjà correct. Aussi, est-ce que vous avez des filler blocks de 1/16 " et de 3/32 "? J'ai seulement le dessin pour les 3/32" et il n'y a pas de filler block 1/16" dans l'assemblage actuel du Bear Paw.

Renaud

PERMI DE VOL

PERMIS

Transports Canada / Transport Canada
Aviation Civile / Civil Aviation
700 Leigh Capreol
Dorval (Québec) H4Y 1G7

Le 16 août 2013

Votre référence/ Your file

Notre référence / Our file
5008-FLCA
RDIMS #8679056

Madame Nathalie Barbeau
877a rue Alphonse-Desrochers
St-Nicolas, Lévis (Québec)
G7A 5K6

OBJET: Aéronef :ROBINSON,
Modèle : R66
Immatriculation : C-FLCA
Numéro de série : 0038

Monsieur,

Veuillez trouver ci-joints les documents suivants se rapportant à l'aéronef mentionné plus haut:

- Certificat de navigabilité spécial — X Permis de vol
___ Certificat de conformité acoustique — X Limites de vol

Ces documents ainsi que le carnet de route doivent être à bord de l'aéronef pour toute envolée.

Il est important que vous avisiez notre Ministère ainsi que le fabricant de votre aéronef de tout changement d'adresse, afin que toute correspondance vous soit transmise.

L'utilisation d'appareils de télécommunication installés à bord de cet aéronef devra être autorisée par Industrie Canada.

Veuillez agréer, Monsieur, nos salutations distinguées.

Marc Lacoste

Marc Lacoste
Inspecteur de la sécurité de l'Aviation civile - Navigabilité
Aviation civile, Région du Québec
Tel : (514) 420-5884
Fax : (514) 633-3538
cynthia.harrison@tc.gc.ca

SUPER MERCI Ma beaucoup aidé

ML/

Canada

Transport Canada / Transports Canada

FLIGHT PERMIT PERMIS DE VOL

1. Nationality and Registration Marks Marques de nationalité et d'immatriculation	2. Aircraft Manufacturer and Model Constructeur et modèle de l'aéronef	3. Aircraft Serial Number Numéro de série de l'aéronef
C-FLCA	ROBINSON R66	0038

4. Engine Manufacturer - Constructeur du moteur	5. Engine model - Modèle du moteur	6. Maximum Permissible Take-off Weight Masse maximale admissible au décollage
ROLLS & ROYCE	250-C300/A1	▶ Kg 2700 lb

7. Purpose - Objet

Essai en vol de certification dans le but d'approuver la conception d'une modification

8. This flight permit is issued pursuant to the *Aeronautics Act*. The aircraft described above is permitted to fly when it complies with the applicable *Canadian Aviation Regulations* and has been certified in accordance with those regulations, except where otherwise indicated in the operating conditions.

8. Le présent permis de vol est délivré en vertu de la *Loi sur l'aéronautique*. L'aéronef ci-haut mentionné est autorisé à voler s'il est conforme au *Règlement de l'aviation canadien* qui s'y applique et est certifié conformément au dit règlement, sauf lorsque les conditions d'exploitation indiquent le contraire.

9. Operating conditions dated 2013-08-16 are a part of this permit.

9. Les conditions d'exploitation en date du 2013-08-16 font partie du présent permis.

10. This aircraft has not been shown to comply with the International Civil Aviation Organization airworthiness standards. Therefore, approval of the foreign Civil Aviation authority is required prior to flight over its territory.

10. Il n'a pas été démontré que cet aéronef est conforme aux normes de navigabilité de l'Organisation de l'Aviation civile internationale. Il faut par conséquent, obtenir la permission de l'Autorité de l'aviation civile du pays étranger concerné avant de survoler leur territoire.

11. This flight permit is not valid after August 31 2013

11. Le présent permit ne sera plus en vigueur après le 31 août 2013

TCR-737

2013-08-16
Date of Issue (yyyy - mm - dd)
Date de délivrance (aaaa - mm - jj)

MARC LACOSTE
For the Minister of Transport - Pour le ministre des Transports

Canada

24-0072 (0710-04)

Canada

Transport Canada / Transports Canada

Operating Conditions - Conditions d'exploitation

Nationality and Registration Marks Marques de nationalité et d'immatriculation	Aircraft Manufacturer and Model Constructeur et modèle de l'aéronef	Aircraft Serial Number Numéro de série de l'aéronef
C-FLCA	ROBINSON R66	0038

Operating Conditions - Conditions d'exploitation

- Operating Limitations listed with the flight permit application (email august 13, 2013) shall be observed at all times during the flight test.

NOTE 1: The aircraft must be operated in compliance with the applicable standards of airworthiness.
L 'aéronef doit être exploité conformément aux normes de navigabilité applicables.

Seal
Sceau TCR-737
Canada

2013-08-16
Date of Issue
Date de délivrance
(yyyy-mm-dd / aaaa-mm-jj)

MARC LACOSTE
Marc Lacoste
For the Minister of Transport - Pour le ministre des Transports

24-0090 (0710-03)

Canada

Application for a Flight Permit

Item 8: Operating Limitations

1. Valid for the purpose of flight evaluation of the aircraft and for the purpose of conducting experimental test flights to show compliance with applicable airworthiness standards
2. Use as a commercial aircraft is prohibited;
3. Flight crew members shall be the holders of valid and subsisting pilot licenses issued or endorsed by Canada and which are appropriate to their duties;
4. Only essential crew members necessary for the purpose of experimental test flight may be carried, no passenger;
5. Controlling Air traffic Control unit to be informed of the experimental nature of the aircraft and the evaluation program prior to flight;
6. Flight over built-up areas prohibited and flight in congested airspace are to be avoided, except for take-off and landing;
7. Permission of foreign air authority required prior to flight in their airspace;
8. Flight testing to be conducted away from built-up areas, airways and air routes in DAY/VFR conditions
9. Aircraft shall be certified as being in condition for safe operation in the aircraft journey log prior to each flight.

Nathalie Barbeau

From: Lacoste, Marc [marc.lacoste@tc.gc.ca]
Sent: August-13-13 3:53 PM
To: 'Nathalie Barbeau'
Subject: RE: papier C-FLCA / Documents R66 - vs l'appareil / vs Permis de vol pour Bearpaws

Bien reçu, je regarde ça demain.

Marc Lacoste
Inspecteur de la sécurité de l'Aviation civile – Navigabilité | Civil Aviation Safety Inspector – Airworthiness
Transports Canada | Transport Canada
700, Place Leigh-Capreol, (NA) Dorval (Québec) H4Y 1G7
marc.lacoste@tc.gc.ca
Téléphone | Telephone : 514-420-5884 / Télécopieur | Facsimile: 1-855-633-3697
Centre de services virtuels de l'aviation | Virtual Services of Civil Aviation : CSVA-VSCA@tc.gc.ca
Centre de communications de l'Aviation civile | Civil Aviation Communication Center: 1-800-305-2059
Gouvernement du Canada | Government of Canada
http://www.tc.gc.ca/fra/aviationcivile/menu.htm
http://www.tc.gc.ca/eng/civilaviation/menu.htm

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 13 août 2013 15:52
À : Lacoste, Marc
Objet : papier C-FLCA / Documents R66 - vs l'appareil / vs Permis de vol pour Bearpaws

M. Lacoste,
Voici le second message avec les enregistrements de l'appareil.
J'ai joint aussi notre brochure actuelle de bearpaws afin que vous sachiez à quoi ressemble le produit.
N'hésitez pas à rejoindre notre ingénieur Mirko Zgela pour toute question d'ordre technique (son no de cell est sur le permi de vol),

Je vous remercie!!

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

From: Pierre-Luc Tardif [mailto:PTardif@canadianhelicopters.com]
Sent: August-12-13 2:48 PM
To: nbarbeau@helitowcart.com
Subject: papier C-FLCA

Pierre-Luc Tardif

Canadian Helicopters Limited
canadianhelicopters.com

CANADIAN HELICOPTERS
AN HNZ COMPANY

-----Transféré par Pierre-Luc Tardif/Canadian Helicopters le 12/08/2013 14:46 -----

A : ptardif@hnz.com
De : copieurkonica@canadianhelicopters.com
Date : 12/08/2013 14:39
Objet : Message from PHOTOCOPIEUR ECOLE DE QUEBEC

(Voir fichier joint : SPHOTOCOPIE13081213520.pdf)

=

Responsibility - Responsabilité	Line Object - Article d'exécution	Amount - Montant	On Account of - Relativement à
[redacted]56Bo	9K08	45,00 $	Permis de vol C-FLCA

Vendor No. - N° du marchand

GST/HST TPS/TVH ▶ 121491807 RT 0141 QST TVQ ▶ 1012857680

Received from - Reçu de

Helitowcart (Vanair)

Nathalie Barbeau

GST/HST Amount Montant de la TPS/TVH ▶	$
PST where applicable TVP lorsque requise ▶	$
Amount received Montant reçu ▶	$ 45,00 $
Signature	

08-0065 (99-05) rev. 01

White Blanche **Payer - Payeur** Canary Canari **Payee - Bénéficiaire** Pink Rose **File - Dossier** Blue Bleu **Dept. - Ministère**

Canada

Nathalie Barbeau

From: Hossari, Maia [maia.hossari@tc.gc.ca]
Sent: August-15-13 1:35 PM
To: Lacoste, Marc; CSVA-VSCA; 'nbarbeau@helitowcart.com'
Subject: Permis de vol - C-FLCA
Attachments: numérisation0090.pdf

Bonjour,

La confirmation du paiement pour une permis de vol, C-FLCA pour Helitowcart (Vanair) est en pièce jointe.

Bonne journée,

Maia Hossari
Spécialiste en comptabilité | Accounting Specialist
Services financiers | Financial Services
Transports Canada | Transport Canada
700 Leigh Capréol, 4ième étage, Dorval, Québec, H4Y 1G7
Téléphone : 514.633.3638
Télécopieur : 514.633.3705
Courriel : maia.hossari@tc.gc.ca

Transport Canada / Transports Canada

APPLICATION FOR A FLIGHT PERMIT

DEMANDE DE PERMIS DE VOL

INSTRUCTIONS

Print or type all entries. Reference *Airworthiness Manual Chapter 507* for the use and disposition of the form.

Dactylographier ou écrire en lettres moulées. Consulter le *chapitre 507 du Manuel de navigabilité* qui précise la façon de remplir et d'acheminer le présent formulaire.

A. AIRCRAFT IDENTIFICATION - IDENTIFICATION DE L'AÉRONEF

1. Owner - Propriétaire
Carol Lagacé

2. Address - Adresse
131 Rue Labbé
Beauport, QC, G1B 2A3
Canada

3. Aircraft Manufacturer - Constructeur de l'aéronef
Robinson

4. Model - Modèle
R66

5. Serial Number - Numéro de série
0038

6. Nationality and Registration Marks - Marques de nationalité et d'immatriculation
C-FLCA

B. PURPOSE OF FLIGHT PERMIT (Check applicable boxes) - OBJECTIF DU PERMIS DE VOL (Cocher la ou les case(s) voulue(s))

1. ☐ Ferry flights to a base for repairs or maintenance
Un vol de convoyage vers une base en vue de réparation ou de maintenance

2. ☐ Delivery, demonstration, market survey, or crew training flights
Un vol de livraison, de démonstration, d'étude de marché ou d'entraînement d'équipage

3. ☑ Flights for the purpose of showing compliance with airworthiness standards
Un vol de démonstration de conformité aux normes de navigabilité

4. ☐ Other purpose (Specify)
Autre fin (Préciser)

C. FLIGHT DESCRIPTION AND AIRCRAFT LIMITATIONS - DESCRIPTION DU VOL ET LIMITATIONS DE L'AÉRONEF

Description of Flight(s): *Use attachment when appropriate* - Description du ou des vol(s): *Joindre une feuille au besoin*

1. From - Aérodrome de départ
CYQB

2. To - Aérodrome de destination
CYQB/CYRQ

3. Via - Escales
N/A

4. Effective date (Y-M-D) Date effective (A-M-J)
Aug 20, 2013

5. Termination date (Y-M-D) Date limite (A-M-J)
Aug 31, 2013

6. Aircraft does not meet the applicable airworthiness requirements as follows:
Raisons pour lesquelles l'aéronef ne satisfait pas aux exigences de navigabilité en vigueur :

In order to perform the airworthiness approval of the R66 Helitowcart BearPaw. Flight testing will be conducted as per Flight Test ATS-0709-FTP-1000, Rev NC, dated July 16, 2013.

7. The following maintenance conditions are considered necessary for safe operation:
Les conditions d'entretien suivantes sont nécessaires pour la conduite des vols en toute sécurité :

Prior to each flight, the aircraft will be signed off by the AME as being airworthy for the next flight through a log entry in the journey log.

8. The following operating conditions are considered necessary for safe operation:
Les conditions d'exploitation suivantes sont nécessaires pour la conduite des vols en toute sécurité :

See attached sheet for aircraft limitation

(Contact person is Mirko Zgela DAR #310 (819-383-7212)

D. SIGNATURES

I hereby certify that the aircraft described above is in a condition for safe operation.
Je, soussigné, certifie que l'aéronef décrit ci-dessus est en bon état de vol.

165-93-1265
Signature, AME Licence No., ACA No. or RCA No.
Signature, N° de licence de TEA, N° d'autorisation ou N° d'autorisation restreinte

14 Aug 2013
Date (Y/A-M-D/J)

and - et

Signature of the Registered Owner or Authorized Representative
Signature du propriétaire enregistré ou du représentant autorisé

14/8/2013
Date (Y/A-M-D/J)

24-0044 (0309-04)

Canada

Transport Canada / Transports Canada

APPLICATION FOR A FLIGHT PERMIT

DEMANDE DE PERMIS DE VOL

INSTRUCTIONS
Print or type all entries. Reference *Airworthiness Manual Chapter 507* for the use and disposition of the form.

Dactylographier ou écrire en lettres moulées. Consulter le *chapitre 507 du Manuel de navigabilité* qui précise la façon de remplir et d'acheminer le présent formulaire.

A. AIRCRAFT IDENTIFICATION - IDENTIFICATION DE L'AÉRONEF

1. Owner - Propriétaire
Carol Lagacé

2. Address - Adresse
131 Rue Labbé
Beauport, QC, G1B 2A3
Canada

3. Aircraft Manufacturer - Constructeur de l'aéronef
Robinson

4. Model - Modèle
R66

5. Serial Number - Numéro de série
0038

6. Nationality and Registration Marks - Marques de nationalité et d'immatriculation
C-FLCA

B. PURPOSE OF FLIGHT PERMIT (Check applicable boxes) - OBJECTIF DU PERMIS DE VOL (Cocher la ou les case(s) voulue(s))

1. ☐ Ferry flights to a base for repairs or maintenance
Un vol de convoyage vers une base en vue de réparation ou de maintenance

2. ☐ Delivery, demonstration, market survey, or crew training flights
Un vol de livraison, de démonstration, d'étude de marché ou d'entraînement d'équipage

3. ☑ Flights for the purpose of showing compliance with airworthiness standards
Un vol de démonstration de conformité aux normes de navigabilité

4. ☐ Other purpose (Specify)
Autre fin (Préciser)

C. FLIGHT DESCRIPTION AND AIRCRAFT LIMITATIONS - DESCRIPTION DU VOL ET LIMITATIONS DE L'AÉRONEF

Description of Flight(s): *Use attachment when appropriate* - Description du ou des vol(s): *Joindre une feuille au besoin*

1. From - Aérodrome de départ
CYQB

2. To - Aérodrome de destination
CYQB/CYRQ

3. Via - Escales
N/A

4. Effective date (Y-M-D) / Date effective (A-M-J)
Aug 20, 2013

5. Termination date (Y-M-D) / Date limite (A-M-J)
Aug 31, 2013

6. Aircraft does not meet the applicable airworthiness requirements as follows:
Raisons pour lesquelles l'aéronef ne satisfait pas aux exigences de navigabilité en vigueur :

In order to perform the airworthiness approval of the R66 Helitowcart BearPaw. Flight testing will be conducted as per Flight Test ATS-0709-FTP-1000, Rev NC, dated July 16, 2013.

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Les conditions d'entretien suivantes sont nécessaires pour la conduite des vols en toute sécurité :

Prior to each flight, the aircraft will be signed off by the AME as being airworthy for the next flight through a log entry in the journey log.

8. The following operating conditions are considered necessary for safe operation:
Les conditions d'exploitation suivantes sont nécessaires pour la conduite des vols en toute sécurité :

See attached sheet for aircraft limitation

(Contact person is Mirko Zgela DAR #310 (819-383-7212)

D. SIGNATURES

I hereby certify that the aircraft described above is in a condition for safe operation.
Je, soussigné, certifie que l'aéronef décrit ci-dessus est en bon état de vol.

165-93-1265
Signature, AME Licence No., ACA No. or RCA No.
Signature, N° de licence de TEA, N° d'autorisation ou N° d'autorisation restreinte

14 Aug 2013
Date (Y/A-M-D/J)

and - et

Signature of the Registered Owner or Authorized Representative
Signature du propriétaire enregistré ou du représentant autorisé

14/8/2013
Date (Y/A-M-D/J)

24-0044 (0309-04)

Canada

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: July-16-13 10:57 AM
To: 'pierre.pepin@tc.gc.ca'
Cc: 'Mirko Zgela'
Subject: URGENT - Demande de Permis de vol / Helitowcart pour Tests de Bearpaws R44 sur R66
Attachments: ATS-0709-FTP-1000 Rev NC _Flight Test Plan BearPaw R66_.pdf; STC_Can_BP_(2011_07_07).pdf; STC_US_BP_(2013_01_14).pdf; Can_Heli_Appd_FlightPermitRq_&_heli_registrations_2013_07_16.pdf

Importance: High

Categories: Cat 6 - Distributors - Hot Case

M. Pépin,
Voici les informations et documents promis:

a) Objet du test : Faire la démonstration que le bearpaw modèle BP44 déjà certifié pour les R44 peut aussi être utilisé sur le R66.
(je vous ai attaché copie des STC Can et US pour nos BP44 avec lesquels nous allons faire le vol).
Mirko Zgela est rejoignable pour toute info supplémentaire sur son cell : 819-383-7212.

b) En attaché le document intitulé 'Can_Heli_Appd_FlightPermitRq.... ' Comprends :
-Demande de Permis de vol signée par le propriétaire et sa procuration pour le mécanicien.
-La même demande de Permis de vol signée par le mécanicien
-Les preuves d'enregistrment de l'aéronef

c) Le Flight Test Plan (attaché)

d) Les conditions d'exploitation ci-bas (telles que fournies par Mirko Zgela suite à votre demande) :

OPERATING LIMITATIONS;

- Valid for the purpose of flight evaluation of the aircraft and for the purpose of conducting experimental test flights to show compliance with applicable airworthiness standards;
- Use as a commercial aircraft is prohibited;
- Flight crew members shall be the holders of valid and subsisting pilot licenses issued or endorsed by Canada and which are appropriate to their duties;
- Only essential crew members necessary for the purpose of experimental test flight may be carried, no passenger;
- Controlling Air traffic Control unit to be informed of the experimental nature of the aircraft and the evaluation program prior to flight;
- Flight over built-up areas prohibited and flight in congested airspace are to be avoided, except for take-off and landing;
- Permission of foreign air authority required prior to flight in their airspace;
- Flight testing to be conducted away from built-up areas, airways and air routes in DAY/VFR conditions
- Aircraft shall be certified as being in condition for safe operation in the aircraft journey log prior to each flight.

M. Pépin, Merci beaucoup pour votre aide!

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

Transport Canada Civil Aviation

STC

Simple External Modification - Applicant's Flight Test Plan/Report

Aircraft Type: Robinson Helicopter Model R66 Registration / Ser No: _____

Modification Description: Installation of Helitowcart BearPaw as per STC: SH06-24

Modification Drawing Number: Installation performed as per Master Document List, Robinson R44/R66 Helicopters Installation of BearPaw Model BP44, Report: HTC-MDL-BP-R44-1000 (Rev D) dated July 7, 2013

Date of Flight: _____ Location of Flight: CYRQ or CYQB

Test Weight: _____ Test CG: _____

Configuration (List All External Mods): Configuration #1: Clean helicopter (Baseline)

Configuration #2: BearPaw installed as per 314-0011-00, BearPaw Model BP44 – Installation Instructions – R44/R66, Rev D dated July 7, 2013

Note: Two flights will be required, one clean to be used as baseline the other with the BearPaw installed.

TEST RESULTS

Test	Characteristics to Look For	Initial if Satisfactory
1. 527.309 – Design Limitation (c) & (d)	Perform forward rearward and sideward flight (left & right) at maximum speed. Note the following: - Abnormal vibration of the airframe - Abnormal vibration of BearPaw - Large displacements of BearPaw - Controllability of the helicopter	
2. 527.251 Vibration	Perform forward rearward and sideward flight (left & right) at maximum speed. Note the following: - Abnormal vibration of the airframe - Abnormal vibration of BearPaw - Large displacements of BearPaw - Controllability of the helicopter	
3. 527.629 Flutter	Perform a shallow dive at 1.1 VNE. Note the following - Abnormal vibration of the airframe and rotor blade - Abnormal vibration of BearPaw - Large displacements of BearPaw - Controllability of the helicopter	

I hereby attest that I have flown (Model) Model _____ (Registration) _____ (Serial Number)_____ with the above modification(s) installed and that this aircraft exhibited the flight characteristics and performance of a standard _____ when the modified with the above modification.

Pilot I/C Signature: _____ Date: _____

Pilot's Name: _____ Pilot's License No: _____

If applicable - DAR's Signature _____ DAR's Name/No: DAR #310

Mirko Zgela

Québec, 16 juillet 2013

Procuration

Je, Carol Lagacé autorise m. Ulrich Laroche, mécanicien chez Hélicoptères Canadiens d'agir en mon nom relativement à la gestion de tests en vol et la diffusion d'information relative à mon appareil Robinson R66, N45200.

Signé par:

Carol Lagacé:
Propriétaire de l'appareil R66 - N45200
Série 0038

Date: 16/7/2013

Témoin:
Nom en lettres carrées:

Date: 16-7-2013

Transport Canada / Transports Canada

APPLICATION FOR A FLIGHT PERMIT

DEMANDE DE PERMIS DE VOL

INSTRUCTIONS
Print or type all entries. Reference *Canadian Aviation Regulations Standard 507* for the use and disposition of the form.

Dactylographier ou écrire en lettres moulées. Consulte Règlement de l'aviation canadien norme 507 du Manuel de navigabilité qui précise la façon de remplir et d'acheminer le présent formulaire.

A. AIRCRAFT IDENTIFICATION - IDENTIFICATION DE L'AÉRONEF

1. Owner - Propriétaire	3. Aircraft Manufacturer - Constructeur de l'aéronef	4a. Model - Modèle
Carol Lagacé	Robinson	R66

2. Address - Adresse	4b. Maximum Permissible Take-Off Weight / Masse maximale admissible au décollage	
131 rue Labbé, Québec, G1B 2A3	1282 Kg	2700 lb
	5. Serial Number - Numéro de série: 0038	6. Nationality and Registration Marks / Marques de nationalité et d'immatriculation: N45200

B. PURPOSE OF FLIGHT PERMIT (Check applicable boxes) - OBJECTIF DU PERMIS DE VOL (Cocher la ou les case(s) voulue(s))

1. ☐ Ferry flights to a base for repairs or maintenance
   Un vol de convoyage vers une base en vue de réparation ou de maintenance
2. ☐ Delivery, demonstration, market survey, or crew training flights
   Un vol de livraison, de démonstration, d'étude de marché ou d'entraînement d'équipage
3. ☑ Flights for the purpose of showing compliance with airworthiness standards
   Un vol de démonstration de conformité aux normes de navigabilité
4. ☐ Other purpose (Specify)
   Autre fin (Préciser)

C. FLIGHT DESCRIPTION AND AIRCRAFT LIMITATIONS / DESCRIPTION DU VOL ET LIMITATIONS DE L'AÉRONEF

Description of Flight(s) *Use attachment when appropriate* / Description du ou des vol(s) *Joindre une feuille au besoin*

1. From - Aérodrome de départ	2. To - Aérodrome de destination	
CYQB	CYRQ	
3. Via - Escales	4. Effective date (yyyy - mm - dd) / Date effective (aaaa - mm - jj): 2013 07 16	5. Termination date (aaaa - mm - dd) / Date limite (aaaa - mm - jj): 2013 7 18

6. Aircraft does not meet the applicable airworthiness requirements as follows:
   Raisons pour lesquelles l'aéronef ne satisfait pas aux exigences de navigabilité en vigueur :

7. The following maintenance conditions are considered necessary for safe operation:
   Les conditions d'entretien suivantes sont nécessaires pour la conduite des vols en toute sécurité :

8. The following operating conditions are considered necessary for safe operation:
   Les conditions d'exploitation suivantes sont nécessaires pour la conduite des vols en toute sécurité :

D. SIGNATURES

I hereby certify that the aircraft described above is in a condition for safe operation.
Je, soussigné, certifie que l'aéronef décrit ci-dessus est en bon état de vol.

911296 — 165-93 / 1068

Signature, AME Licence No., ACA No. or RCA No.
Signature, N° de licence de TEA, N° d'autorisation ou N° d'autorisation restreinte

2013/7/16
Date (yyyy - mm - dd)
Date (aaaa - mm - jj)

and - et

Signature of the Registered Owner or Authorized Representative
Signature du propriétaire enregistré ou du représentant autorisé

2013/7/16
Date (yyyy - mm - dd)
Date (aaaa - mm - jj)

24-0044 (0710-06)

Canada

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION-FEDERAL AVIATION ADMINISTRATION

STANDARD AIRWORTHINESS CERTIFICATE

1 NATIONALITY AND REGISTRATION MARKS	2 MANUFACTURER AND MODEL	3 AIRCRAFT SERIAL NUMBER	4 CATEGORY
N45200	Robinson Helicopter Co. R66	0038	Normal

5 AUTHORITY AND BASIS FOR ISSUANCE: This airworthiness certificate is issued pursuant to the Federal Aviation Act of 1958 and certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to conform to the type certificate therefor, to be in condition for safe operation, and has been shown to meet the requirements of the applicablecomprehensive and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation, except as noted herein. Exceptions:

Exemption 9589 for Hydraulic Controls

6 TERMS AND CONDITIONS: Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with Parts 21, 43, and 91 of the Federal Aviation Regulations, as appropriate, and the aircraft is registered in the United States.

DATE OF ISSUANCE	FAA REPRESENTATIVE	DESIGNATION NUMBER
06/16/2011	Martin P. Schneider	ODA606172NM

Any iteration, reproduction, or misuse of this certificate may be punishable by a fine not exceeding $1,000 or imprisonment not exceeding 3 years or both.
THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

FAA Form 8100-2 (3-08)

REGISTRATION NOT TRANSFERABLE

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION – FEDERAL AVIATION ADMINISTRATION
CERTIFICATE OF AIRCRAFT REGISTRATION

This certificate must be in the aircraft when operated.

NATIONALITY AND REGISTRATION MARKS **N** 45200

AIRCRAFT SERIAL NO. 0038

MANUFACTURER AND MANUFACTURER'S DESIGNATION OF AIRCRAFT
ROBINSON HELICOPTER CO R66

ICAO Aircraft Address Code: 51275773

ISSUED TO

BANK OF UTAH TRUSTEE
200 E SOUTH TEMPLE STE 210
SALT LAKE CITY UT 84111-1346

Corporation

This certificate is issued for registration purposes only and is not a certificate of title. The Federal Aviation Administration does not determine rights of ownership as between private persons.

It is certified that the above described aircraft has been entered on the register of the Federal Aviation Administration, United States of America, in accordance with the Convention on International Civil Aviation dated December 7, 1944, and with Title 49, United States Code, and regulations issued thereunder.

DATE OF ISSUE June 16, 2011
EXPIRATION DATE June 30, 2014

ADMINISTRATOR

U.S. Department of Transportation **Federal Aviation Administration**

AC Form 8050-3 (10/2010) Supersedes previous editions

(CUT ON DOTTED LINE)

Transport Canada / Transports Canada

APPLICATION FOR A FLIGHT PERMIT

DEMANDE DE PERMIS DE VOL

INSTRUCTIONS

Print or type all entries. Reference *Airworthiness Manual Chapter 507* for the use and disposition of the form.

Dactylographier ou écrire en lettres moulées. Consulter le *chapitre 507 du Manuel de navigabilité* qui précise la façon de remplir et d'acheminer le présent formulaire.

A. AIRCRAFT IDENTIFICATION - IDENTIFICATION DE L'AÉRONEF

1. Owner - Propriétaire
   Carol Lagacé

2. Address - Adresse
   131 Rue Labbé
   Beauport, QC, G1B 2A3
   Canada

3. Aircraft Manufacturer - Constructeur de l'aéronef
   Robinson

4. Model - Modèle
   R66

5. Serial Number - Numéro de série
   0038

6. Nationality and Registration Marks
   Marques de nationalité et d'immatriculation
   C-FLCA

B. PURPOSE OF FLIGHT PERMIT (Check applicable boxes) - OBJECTIF DU PERMIS DE VOL (Cocher la ou les case(s) voulue(s))

1. ☐ Ferry flights to a base for repairs or maintenance
   Un vol de convoyage vers une base en vue de réparation ou de maintenance
2. ☐ Delivery, demonstration, market survey, or crew training flights
   Un vol de livraison, de démonstration, d'étude de marché ou d'entraînement d'équipage
3. ☑ Flights for the purpose of showing compliance with airworthiness standards
   Un vol de démonstration de conformité aux normes de navigabilité
4. ☐ Other purpose (Specify)
   Autre fin (Préciser)

C. FLIGHT DESCRIPTION AND AIRCRAFT LIMITATIONS — DESCRIPTION DU VOL ET LIMITATIONS DE L'AÉRONEF

Description of Flight(s) *Use attachment when appropriate* — Description du ou des vol(s) *Joindre une feuille au besoin*

1. From - Aérodrome de départ
   CYQB

2. To - Aérodrome de destination
   CYQB/CYRQ

3. Via - Escales
   N/A

4. Effective date (Y-M-D)
   Date effective (A-M-J)
   Aug 20, 2013

5. Termination date (Y-M-D)
   Date limite (A-M-J)
   Aug 31, 2013

6. Aircraft does not meet the applicable airworthiness requirements as follows:
   Raisons pour lesquelles l'aéronef ne satisfait pas aux exigences de navigabilité en vigueur :

   In order to perform the airworthiness approval of the R66 Helitowcart BearPaw. Flight testing will be conducted as per Flight Test ATS-0709-FTP-1000, Rev NC, dated July 16, 2013.

7. The following maintenance conditions are considered necessary for safe operation:
   Les conditions d'entretien suivantes sont nécessaires pour la conduite des vols en toute sécurité :

   Prior to each flight, the aircraft will be signed off by the AME as being airworthy for the next flight through a log entry in the journey log.

8. The following operating conditions are considered necessary for safe operation:
   Les conditions d'exploitation suivantes sont nécessaires pour la conduite des vols en toute sécurité :

   See attached sheet for aircraft limitation

   (Contact person is Mirko Zgela DAR #310 (819-383-7212)

D. SIGNATURES

I hereby certify that the aircraft described above is in a condition for safe operation.
Je, soussigné, certifie que l'aéronef décrit ci-dessus est en bon état de vol.

_____ _____

Signature, AME Licence No., ACA No. or RCA No. — Date (Y/A-M-D/J)

Signature, N° de licence de TEA, N° d'autorisation ou N° d'autorisation restreinte

and - et

_____ _____

Signature of the Registered Owner or Authorized Representative — Date (Y/A-M-D/J)

Signature du propriétaire enregistré ou du représentant autorisé

Canada

Application for a Flight Permit

Item 8: Operating Limitations

1. Valid for the purpose of flight evaluation of the aircraft and for the purpose of conducting experimental test flights to show compliance with applicable airworthiness standards
2. Use as a commercial aircraft is prohibited;
3. Flight crew members shall be the holders of valid and subsisting pilot licenses issued or endorsed by Canada and which are appropriate to their duties;
4. Only essential crew members necessary for the purpose of experimental test flight may be carried, no passenger;
5. Controlling Air traffic Control unit to be informed of the experimental nature of the aircraft and the evaluation program prior to flight;
6. Flight over built-up areas prohibited and flight in congested airspace are to be avoided, except for take-off and landing;
7. Permission of foreign air authority required prior to flight in their airspace;
8. Flight testing to be conducted away from built-up areas, airways and air routes in DAY/VFR conditions
9. Aircraft shall be certified as being in condition for safe operation in the aircraft journey log prior to each flight.

mis à jour * Frédérick Fasbinay
514 420 5864

Nathalie Barbeau

From: Pépin, Pierre [pierre.pepin@tc.gc.ca]
Sent: July-16-13 12:12 PM
To: 'Nathalie Barbeau'
Cc: Melançon, Sylvain
Subject: RE: Report du Test en vol

S.V.P., ne pas attendre à la veille des tests, se prendre à l'avance (dès qu'immatriculé au Canada).

Le point de contact de guichet unique pour toute demande est :

Facsimile: 1-855-633-3697

Centre de services virtuels de l'aviation | Virtual Services of Civil Aviation : CSVA-VSCA@tc.gc.ca

Centre de communications de l'Aviation civile | Civil Aviation Communication Center: 1-800-305-2059

Att: M. Lacoste
514-420-5884
Fx-1 855-633-3697
cc:
Att: marc.lacoste@tc.gc.ca

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 16 juillet 2013 12:05
À : Pépin, Pierre
Cc : Melançon, Sylvain
Objet : Report du Test en vol

M. Pépin et M. Melançon,
Mon père et moi avons décidé de reporter le test en vol.

Carol Lagacé le propriétaire de l'hélico nous a informé qu'il prévoit transférer son hélico en lettrage canadien d'ici 2 semaines.
Il avait d'ailleurs entrepris le processus cette semaine.
On fera le test quand il aura reçu son approb. canadienne. Ce sera plus simple.

Je tiens à vous remercier tous les deux de votre aide et du fait que vous avez intercepté que l'hélico étant US cela causait problème.
Même chose pour le certif émis à une banque US. Je n'avais vraiment pas vu venir cela.

Je compte reprendre l'exercice dans qq semaines et je compte bien m'y prendre d'avance maintenant que je sais tout ce que cela prends!!
Entre temps mes salutations très chaleureuses à vous deux.
Merci infiniment pour le support que vous m'avez donné ce matin : Ce fût **Très Très apprécié.**

À bientôt,

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575

nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

From: Pépin, Pierre [mailto:pierre.pepin@tc.gc.ca]
Sent: July-16-13 11:34 AM
To: 'Nathalie Barbeau'
Cc: Melançon, Sylvain
Subject: RE: URGENT - Demande de Permis de vol / Plus d'info

Nous pensons que ce bureau de la FAA est le plus près du Québec. Mes autres contacts FAA ne sont pas au bureau.

(781) 238-7500

Et bonne chance.

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 16 juillet 2013 11:07
À : Pépin, Pierre
Objet : URGENT - Demande de Permis de vol / Plus d'info
Importance : Haute

M. Pépin,
Le pilote professionel doit décoller de Québec à midi pour se rendre à Trois-Rivières pour les tests, donc si possible de faire en sorte que nous ayons le permis dès que possible. Tous ces gens attendent mon signal pour déclencher le vol et j'ai déjà du personnel en route en voiture vers 3-Riv....
(Vous pouvez deviner que ça bourdonne autour de moi..... ;)

Svp **remercier** d'avance de ma part votre collègue qui aura à réaliser le travail. Je suis désolée de mettre autant de pression.

Nathalie Barbeau
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nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

From: Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Sent: July-16-13 10:57 AM
To: 'pierre.pepin@tc.gc.ca'
Cc: 'Mirko Zgela'
Subject: URGENT - Demande de Permis de vol / Helitowcart pour Tests de Bearpaws R44 sur R66
Importance: High

M. Pépin,
Voici les informations et documents promis:

a) Objet du test : Faire la démonstration que le bearpaw modèle BP44 déjà certifié pour les R44 peut aussi être utilisé sur le R66.
(je vous ai attaché copie des STC Can et US pour nos BP44 avec lesquels nous allons faire le vol).
Mirko Zgela est rejoignable pour toute info supplémentaire sur son cell : 819-383-7212.

b) En attaché le document intitulé 'Can_Heli_Appd_FlightPermitRq.... ' Comprends :
-Demande de Permis de vol signée par le propriétaire et sa procuration pour le mécanicien.
-La même demande de Permis de vol signée par le mécanicien
-Les preuves d'enregistrment de l'aéronef

c) Le Flight Test Plan (attaché)

d) Les conditions d'exploitation ci-bas (telles que fournies par Mirko Zgela suite à votre demande) :

OPERATING LIMITATIONS;

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- Aircraft shall be certified as being in condition for safe operation in the aircraft journey log prior to each flight.

M. Pépin, Merci beaucoup pour votre aide!

Nathalie Barbeau
VP Commercial Affairs

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Quebec, Canada, G7A 5K6
T: +1.418.561.4512

F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

Nathalie Barbeau

From: Melançon, Sylvain [sylvain.melancon@tc.gc.ca]
Sent: July-16-13 12:35 PM
To: 'Nathalie Barbeau'
Subject: RE: Report du Test en vol

Bienvenue Mme Barbeau

Sylvain Melançon
Inspecteur Technique-Navigabilité (OPS 1)
Technical Inspector-Airworthiness (OPS 1)
Transports Canada | Transport Canada
700, Place Leigh-Capreol, Dorval (Québec) H4Y 1G7
sylvain.melancon@tc.gc.ca
Téléphone | Telephone : 514-633-3604 / Télécopieur | Facsimile: 1-855-633-3697
Centre de services virtuels de l'aviation | Virtual Services of Civil Aviation : CSVA-VSCA@tc.gc.ca
Centre de communications de l'Aviation civile | Civil Aviation Communication Center: 1-800-305-2059
Gouvernement du Canada | Government of Canada
http://www.tc.gc.ca/fra/aviationcivile/menu.htm
http://www.tc.gc.ca/eng/civilaviation/menu.htm

Canada Transport Canada

De : Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
Envoyé : 16 juillet 2013 12:05
À : Pépin, Pierre
Cc : Melançon, Sylvain
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Il avait d'ailleurs entrepris le processus cette semaine.

On fera le test quand il aura reçu son approb. canadienne. Ce sera plus simple.

Je tiens à vous remercier tous les deux de votre aide et du fait que vous avez intercepté que l'hélico étant US cela causait problème.
Même chose pour le certif émis à une banque US. Je n'avais vraiment pas vu venir cela.

Je compte reprendre l'exercice dans qq semaines et je compte bien m'y prendre d'avance maintenant que je sais tout ce que cela prends!!
Entre temps mes salutations très chaleureuses à vous deux.
Merci infiniment pour le support que vous m'avez donné ce matin : Ce fût **Très Très apprécié.**

À bientôt,

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VP Commercial Affairs

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Subject: RE: URGENT - Demande de Permis de vol / Plus d'info

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Et bonne chance.

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Envoyé : 16 juillet 2013 11:07
À : Pépin, Pierre
Objet : URGENT - Demande de Permis de vol / Plus d'info
Importance : Haute

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(Vous pouvez deviner que ça bourdonne autour de moi..... ;)

Svp **remercier** d'avance de ma part votre collègue qui aura à réaliser le travail. Je suis désolée de mettre autant de pression.

Nathalie Barbeau
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From: Nathalie Barbeau [mailto:nbarbeau@helitowcart.com]
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Cc: 'Mirko Zgela'
Subject: URGENT - Demande de Permis de vol / Helitowcart pour Tests de Bearpaws R44 sur R66
Importance: High

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Voici les informations et documents promis:

a) Objet du test : Faire la démonstration que le bearpaw modèle BP44 déjà certifié pour les R44 peut aussi être utilisé sur le R66.
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b) En attaché le document intitulé 'Can_Heli_Appd_FlightPermitRq.... ' Comprends :
-Demande de Permis de vol signée par le propriétaire et sa procuration pour le mécanicien.
-La même demande de Permis de vol signée par le mécanicien
-Les preuves d'enregistrment de l'aéronef

c) Le Flight Test Plan (attaché)

d) Les conditions d'exploitation ci-bas (telles que fournies par Mirko Zgela suite à votre demande) :

OPERATING LIMITATIONS;

- Valid for the purpose of flight evaluation of the aircraft and for the purpose of conducting experimental test flights to show compliance with applicable airworthiness standards;
- Use as a commercial aircraft is prohibited;
- Flight crew members shall be the holders of valid and subsisting pilot licenses issued or endorsed by Canada and which are appropriate to their duties;
- Only essential crew members necessary for the purpose of experimental test flight may be carried, no passenger;
- Controlling Air traffic Control unit to be informed of the experimental nature of the aircraft and the evaluation program prior to flight;

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M. Pépin, Merci beaucoup pour votre aide!

Nathalie Barbeau
VP Commercial Affairs

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F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

Transport Canada Civil Aviation

STC

Simple External Modification - Applicant's Flight Test Plan/Report

Aircraft Type: Robinson Helicopter Model R66 Registration / Ser No: _____

Modification Description: Installation of Helitowcart BearPaw as per STC: SH06-24

Modification Drawing Number: Installation performed as per Master Document List, Robinson R44/R66 Helicopters Installation of BearPaw Model BP44, Report: HTC-MDL-BP-R44-1000 (Rev D) dated July 7, 2013

Date of Flight: _____ Location of Flight: CYRQ or CYQB

Test Weight: _____ Test CG: _____

Configuration (List All External Mods): Configuration #1: Clean helicopter (Baseline)

Configuration #2: BearPaw installed as per 314-0011-00, BearPaw Model BP44 – Installation Instructions – R44/R66, Rev D dated July 7, 2013

Note: Two flights will be required, one clean to be used as baseline the other with the BearPaw installed.

TEST RESULTS

Test	Characteristics to Look For	Initial if Satisfactory
1. 527.309 – Design Limitation (c) & (d)	Perform forward rearward and sideward flight (left & right) at maximum speed. Note the following: - Abnormal vibration of the airframe - Abnormal vibration of BearPaw - Large displacements of BearPaw - Controllability of the helicopter	
2. 527.251 Vibration	Perform forward rearward and sideward flight (left & right) at maximum speed. Note the following: - Abnormal vibration of the airframe - Abnormal vibration of BearPaw - Large displacements of BearPaw - Controllability of the helicopter	
3. 527.629 Flutter	Perform a shallow dive at 1.1 VNE. Note the following - Abnormal vibration of the airframe and rotor blade - Abnormal vibration of BearPaw - Large displacements of BearPaw - Controllability of the helicopter	

I hereby attest that I have flown (Model) Model _____ (Registration) _____ (Serial Number)_____ with the above modification(s) installed and that this aircraft exhibited the flight characteristics and performance of a standard _____ when the modified with the above modification.

Pilot I/C Signature: _____ Date: _____

Pilot's Name: _____ Pilot's License No: _____

If applicable - DAR's Signature Mirko Zgela DAR's Name/No: DAR #310 _____

ATT! Doit être émis par le propriétaire légal. ? Bank of Utah?

Québec, 16 juillet 2013

Procuration

Je, Carol Lagacé autorise m. Ulrich Laroche, mécanicien chez Hélicoptères Canadiens d'agir en mon nom relativement à la gestion de tests en vol et la diffusion d'information relative à mon appareil Robinson R66, N45200.

Signé par:

Carol Lagacé:
Propriétaire de l'appareil R66 - N45200
Série 0038

Date: 16/7/2013

Témoin:
Nom en lettres carrées:

Date: 16-7-2013

Transport Canada / Transports Canada

APPLICATION FOR A FLIGHT PERMIT

DEMANDE DE PERMIS DE VOL

INSTRUCTIONS

Print or type all entries. Reference *Canadian Aviation Regulations Standard 507* for the use and disposition of the form.

Dactylographier ou écrire en lettres moulées. Consulte Règlement de l'aviation canadien norme 507 du Manuel de navigabilité qui précise la façon de remplir et d'acheminer le présent formulaire.

A. AIRCRAFT IDENTIFICATION - IDENTIFICATION DE L'AÉRONEF

1. Owner - Propriétaire	3. Aircraft Manufacturer - Constructeur de l'aéronef	4a. Model - Modèle
Carol Lagacé	Robinson	R66

2. Address - Adresse	4b. Maximum Permissible Take-Off Weight / Masse maximale admissible au décollage	
131 rue Labbé, Québec, G1B 2A3	1282 Kg	2700 lb

5. Serial Number - Numéro de série	6. Nationality and Registration Marks / Marques de nationalité et d'immatriculation
0038	N45200

B. PURPOSE OF FLIGHT PERMIT (Check applicable boxes) - OBJECTIF DU PERMIS DE VOL (Cocher la ou les case(s) voulue(s))

1. ☐ Ferry flights to a base for repairs or maintenance
   Un vol de convoyage vers une base en vue de réparation ou de maintenance
2. ☐ Delivery, demonstration, market survey, or crew training flights
   Un vol de livraison, de démonstration, d'étude de marché ou d'entraînement d'équipage
3. ☑ Flights for the purpose of showing compliance with airworthiness standards
   Un vol de démonstration de conformité aux normes de navigabilité
4. ☐ Other purpose (Specify)
   Autre fin (Préciser)

C. FLIGHT DESCRIPTION AND AIRCRAFT LIMITATIONS — DESCRIPTION DU VOL ET LIMITATIONS DE L'AÉRONEF

Description of Flight(s) *Use attachment when appropriate* — Description du ou des vol(s) *Joindre une feuille au besoin*

1. From - Aérodrome de départ	2. To - Aérodrome de destination	
CYQB	CYRQ	
3. Via - Escales	4. Effective date (yyyy - mm - dd) / Date effective (aaaa - mm - jj)	5. Termination date (aaaa - mm - dd) / Date limite (aaaa - mm - jj)
	2013 07 16	2013 7 18

6. Aircraft does not meet the applicable airworthiness requirements as follows:
   Raisons pour lesquelles l'aéronef ne satisfait pas aux exigences de navigabilité en vigueur :

7. The following maintenance conditions are considered necessary for safe operation:
   Les conditions d'entretien suivantes sont nécessaires pour la conduite des vols en toute sécurité :

8. The following operating conditions are considered necessary for safe operation:
   Les conditions d'exploitation suivantes sont nécessaires pour la conduite des vols en toute sécurité :

D. SIGNATURES

I hereby certify that the aircraft described above is in a condition for safe operation.
Je, soussigné, certifie que l'aéronef décrit ci-dessus est en bon état de vol.

911296 4/165-93 1068

Signature, AME Licence No., ACA No. or RCA No.
Signature, N° de licence de TEA, N° d'autorisation ou N° d'autorisation restreinte

2013/7/16
Date (yyyy - mm - dd)
Date (aaaa - mm - jj)

and - et

Signature of the Registered Owner or Authorized Representative
Signature du propriétaire enregistré ou du représentant autorisé

2013/7/16
Date (yyyy - mm - dd)
Date (aaaa - mm - jj)

24-0044 (0710-06)

Canada

UNITED STATES OF AMERICA

DEPARTMENT OF TRANSPORTATION-FEDERAL AVIATION ADMINISTRATION

STANDARD AIRWORTHINESS CERTIFICATE

1 NATIONALITY AND REGISTRATION MARKS	2 MANUFACTURER AND MODEL	3 AIRCRAFT SERIAL NUMBER	4 CATEGORY
N45200	Robinson Helicopter Co. R66	0038	Normal

5 AUTHORITY AND BASIS FOR ISSUANCE: This airworthiness certificate is issued pursuant to the Federal Aviation Act of 1958 and certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to conform to the type certificate therefor, to be in condition for safe operation, and has been shown to meet the requirements of the applicablecomprehensive and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation, except as noted herein. Exceptions:

Exemption 9589 for Hydraulic Controls

6 TERMS AND CONDITIONS: Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with Parts 21, 43, and 91 of the Federal Aviation Regulations, as appropriate, and the aircraft is registered in the United States.

DATE OF ISSUANCE	FAA REPRESENTATIVE	DESIGNATION NUMBER
06/16/2011	Martin P. Schneider	ODA606172NM

Any iteration, reproduction, or misuse of this certificate may be punishable by a fine not exceeding $1,000 or imprisonment not exceeding 3 years or both.
THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

FAA Form 8100-2 (3-08)

REGISTRATION NOT TRANSFERABLE

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION – FEDERAL AVIATION ADMINISTRATION
CERTIFICATE OF AIRCRAFT REGISTRATION

This certificate must be in the aircraft when operated.

NATIONALITY AND REGISTRATION MARKS **N** 45200

AIRCRAFT SERIAL NO. 0038

MANUFACTURER AND MANUFACTURER'S DESIGNATION OF AIRCRAFT
ROBINSON HELICOPTER CO R66

ICAO Aircraft Address Code: 51275773

ISSUED TO

BANK OF UTAH TRUSTEE
200 E SOUTH TEMPLE STE 210
SALT LAKE CITY UT 84111-1346

Corporation

This certificate is issued for registration purposes only and is not a certificate of title. The Federal Aviation Administration does not determine rights of ownership as between private persons.

It is certified that the above described aircraft has been entered on the register of the Federal Aviation Administration, United States of America, in accordance with the Convention on International Civil Aviation dated December 7, 1944, and with Title 49, United States Code, and regulations issued thereunder.

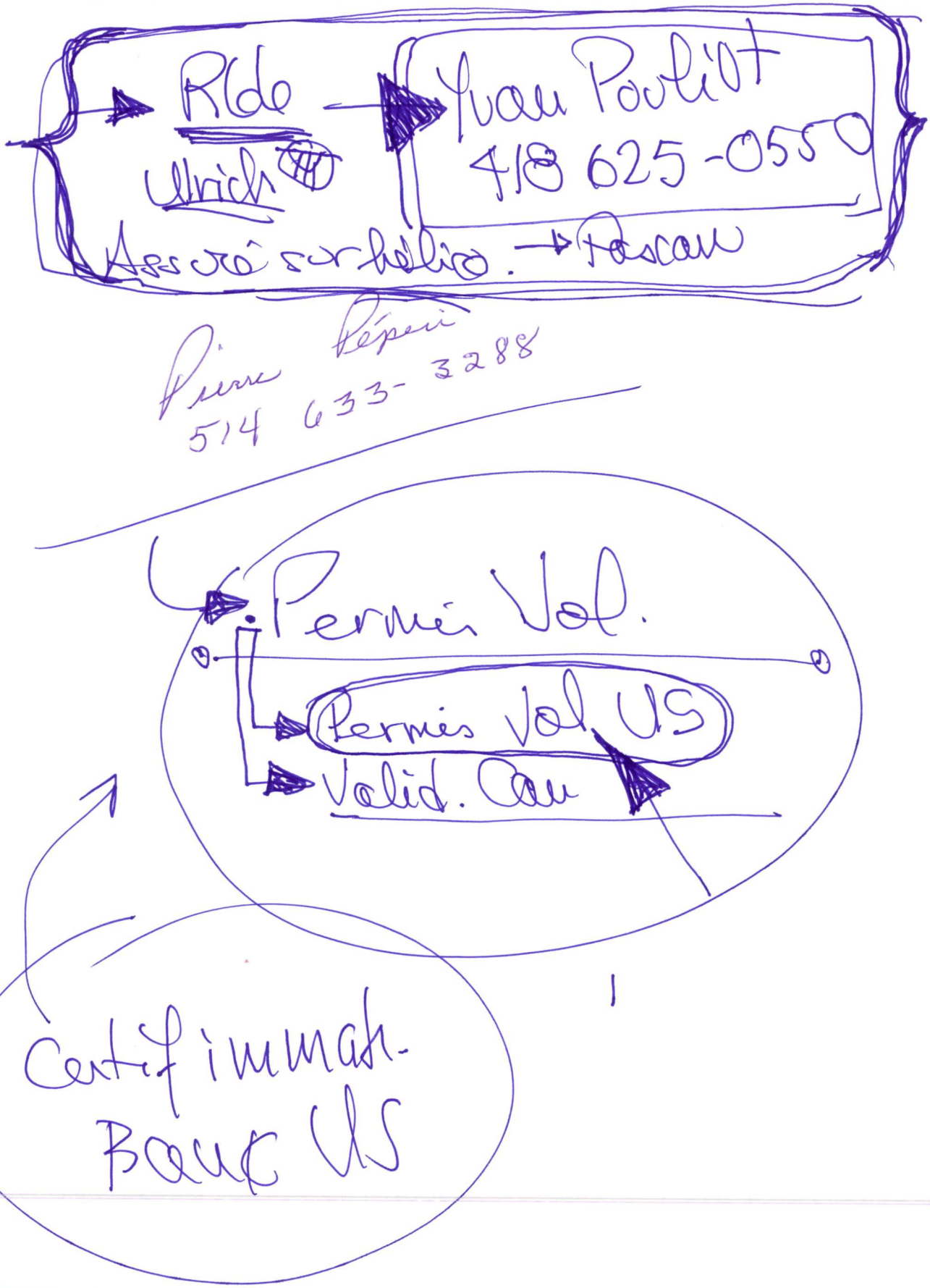
DATE OF ISSUE June 16, 2011
EXPIRATION DATE June 30, 2014

ADMINISTRATOR

U.S. Department of Transportation **Federal Aviation Administration**

AC Form 8050-3 (10/2010) Supersedes previous editions

(CUT ON DOTTED LINE)


RCde
Ulrich
Ivan Poulin
418 625-0550
Assoc sur hélico. → Foscan
Pierre Pépin
514 633-3288
Permis Vol.
Permis Vol US
Valid. Can
Certif immat.
Banc US

Questions? Contact Us!

info@helitowcart.com
+1.418.561.4512

877a Alphonse-Desrochers
St-Nicolas, Levis, Qc
Canada, G7A 5K6

www.**Helitowcart**.com



Content:

1. Introduction
2. Features

3. Mechanicals
4. Electricals
5. Electronics
6. Hydraulics
7. Batteries

8. Maintenance
9. Breakdown Service Guide
10. Serial Number & Model
11. Warranty

Annexes:

Transport Canada / Transports Canada

APPLICATION FOR A FLIGHT PERMIT

819 383 7712

GROUPE DORCAS www.groupedorcas.com
>STRATÉGIE >CRÉATION >PRODUCTION

INSTRUCTIONS

Print or type all entries. Reference *Canadian Aviation Regulations Standard 507* for the use and disposition of the form.

Dactylographier ou écrire
canadien norme 507 du
d'acheminer le présent fo

A. AIRCRAFT IDENTIFICATION - IDENTIFICATION DE L'AÉRONEF

1. Owner - Propriétaire	3. Aircraft Manufacturer - C
Carol Lagacé	Robinson
2. Address - Adresse Canadian Helicopter 131 rue Laflèche Aéroport Jean-Lesage, Qc G1B 2A3 Québec	4b. Maximum Permissible Take Masse maximale admissible ▶
	5. Serial Number - Numéro de sé 0038
	N45200

B. PURPOSE OF FLIGHT PERMIT (Check applicable boxes) - OBJECTIF DU PERMIS DE VOL (Cocher la ou les case(s) voulue(s))

1. ☐ Ferry flights to a base for repairs or maintenance
   Un vol de convoyage vers une base en vue de réparation ou de maintenance
2. ☐ Delivery, demonstration, market survey, or crew training flights
   Un vol de livraison, de démonstration, d'étude de marché ou d'entraînement d'équipage
3. ☑ Flights for the purpose of showing compliance with airworthiness standards
   Un vol de démonstration de conformité aux normes de navigabilité
4. ☑ Other purpose (Specify)
   Autre fin (Préciser)

C. FLIGHT DESCRIPTION AND AIRCRAFT LIMITATIONS
DESCRIPTION DU VOL ET LIMITATIONS DE L'AÉRONEF

Description of Flight(s) *Use attachment when appropriate* / Description du ou des vol(s) *Joindre une feuille au besoin*

1. From - Aérodrome de départ	2. To - Aérodrome de destination	
CYQB	CYRQ	
3. Via - Escales	4. Effective date (yyyy - mm - dd) Date effective (aaaa - mm - jj)	5. Termination date (aaaa - mm - dd) Date limite (aaaa - mm - jj)
Non applicable	2013-07-16	2013-07-17

6. Aircraft does not meet the applicable airworthiness requirements as follows:
   Raisons pour lesquelles l'aéronef ne satisfait pas aux exigences de navigabilité en vigueur :

   n/a

7. The following maintenance conditions are considered necessary for safe operation:
   Les conditions d'entretien suivantes sont nécessaires pour la conduite des vols en toute sécurité :

   n/a

8. The following operating conditions are considered necessary for safe operation:
   Les conditions d'exploitation suivantes sont nécessaires pour la conduite des vols en toute sécurité :

   n/a

D. SIGNATURES

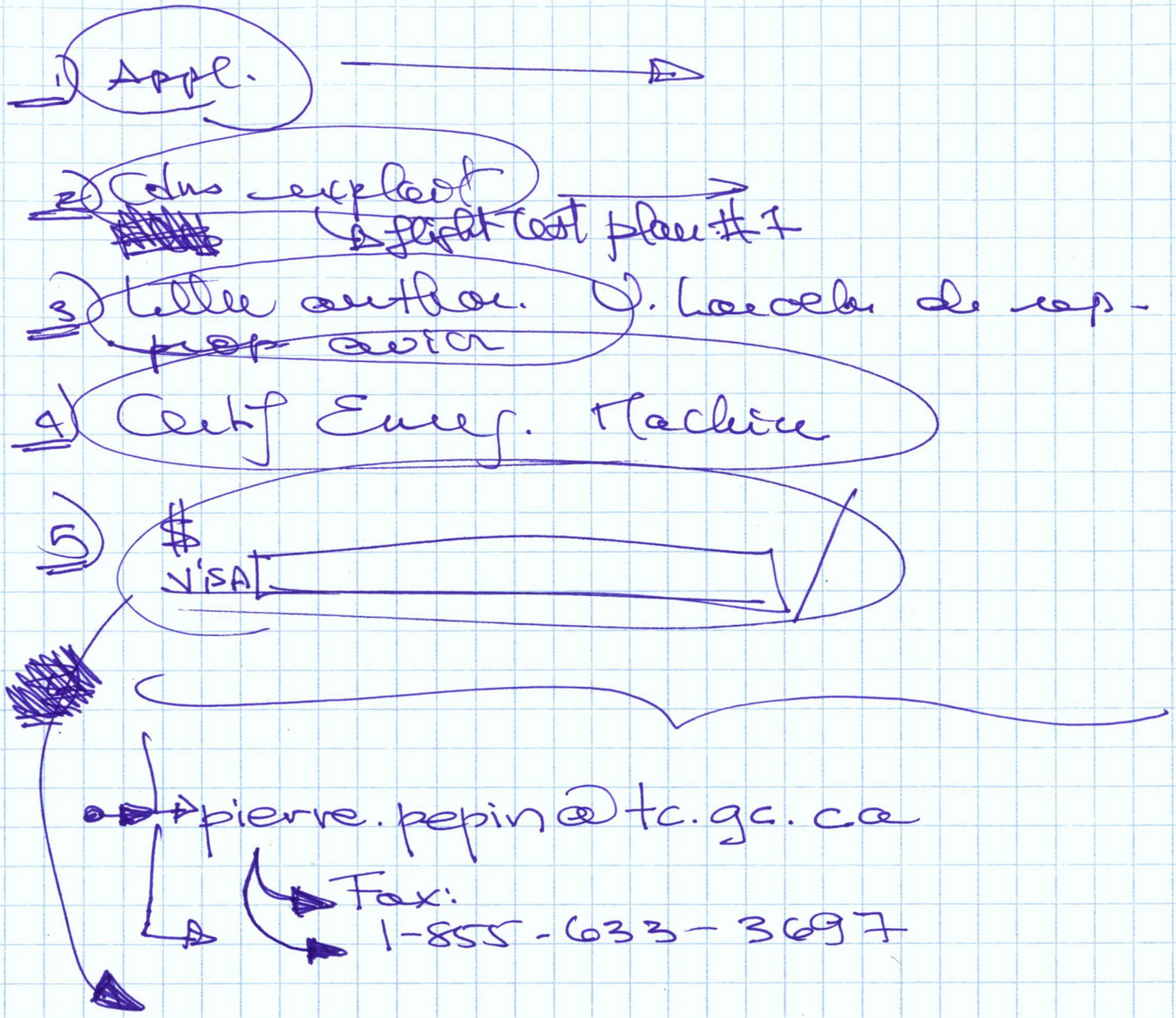
I hereby certify that the aircraft described above is in a condition for safe operation.
Je, soussigné, certifie que l'aéronef décrit ci-dessus est en bon état de vol.

Signature, AME Licence No., ACA No. or RCA No.
Signature, N° de licence de TEA, N° d'autorisation ou N° d'autorisation restreinte
and - et
Signature of the Registered Owner or Authorized Representative
Signature du propriétaire enregistré ou du représentant autorisé

Date (yyyy - mm - dd)
Date (aaaa - mm - jj)

24-0044 (0710-06)

Canada


1) Appl.
2) plus explicit
3) Lettre author.
4) Certif Emetteur
5) $
VISA
pierre.pepin@tc.gc.ca
Fax:
1-855-633-3697

Death

663 0555 #221

ndaigle@enterprise.lt.com

FLIGHT TEST PLAN

Transport Canada Civil Aviation

STC

Simple External Modification - Applicant's Flight Test Plan/Report (ATS-07

Aircraft Type: Robinson Helicopter Model R66 Registration / Ser No: C-FLCA / 003

Modification Description: Installation of Helitowcart BearPaw as per STC: SH06-24

Modification Drawing Number: Installation performed as per Master Document List, Robinson R44/R66 Helicopters Installation of BearPaw Model BP44, Report: HTC-MDL-BP-R44-1000 (Rev D) dated July 7, 2013

Date of Flight: _____ Location of Flight: CYRQ or CYQB

Test Weight: _____ Test CG: _____

Configuration (List All External Mods): Configuration #1: Clean helicopter (Baseline)

Configuration #2: BearPaw installed as per 314-0011-00, BearPaw Model BP44 – Installation Instructions – R44/R66, Rev D dated July 7, 2013

Note: Two flights will be required, one clean to be used as baseline the other with the BearPaw installed.

TEST RESULTS

Test	Characteristics to Look For	Initial if Satisfactory
1. 527.309 – Design Limitation (c) & (d)	Perform forward rearward and sideward flight (left & right) at maximum speed. Note the following: - Abnormal vibration of the airframe - Abnormal vibration of BearPaw - Large displacements of BearPaw - Controllability of the helicopter	
2. 527.251 Vibration	Perform forward rearward and sideward flight (left & right) at maximum speed. Note the following: - Abnormal vibration of the airframe - Abnormal vibration of BearPaw - Large displacements of BearPaw - Controllability of the helicopter	
3. 527.629 Flutter	Perform a shallow dive at 1.1 VNE. Note the following - Abnormal vibration of the airframe and rotor blade - Abnormal vibration of BearPaw - Large displacements of BearPaw - Controllability of the helicopter	

I hereby attest that I have flown (Model) Model _____ (Registration) _____ (Serial Number)_____ with the above modification(s) installed and that this aircraft exhibited the flight characteristics and performance of a standard _____ when the modified with the above modification.

Pilot I/C Signature: _____ Date: _____

Pilot's Name: _____ Pilot's License No: _____

If applicable - DAR's Signature DAR's Name/No: DAR #310

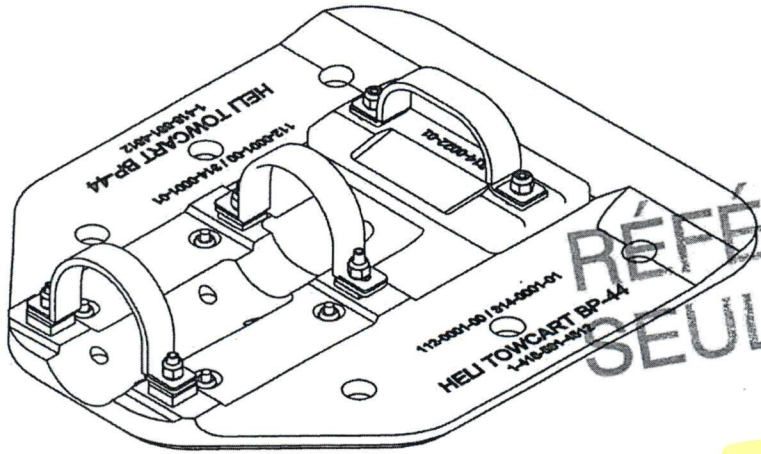
Mirko Zgela _____

NOTES:

1. ICEBLADE ASSEMBLY CAN BE OMITTED FROM INSTALLATION (OPTIONAL)

2. FASTENERS LENGHT TO BE DETERMINED AT INSTALLATION

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL	SPECIFICATION	SIZE
1	1	314-0001-01-B	BEARPAW - PAD	UHMW		1
2	1	314-0022-01-A	BEARPAW - FILLER BLOCK REAR	UHMW	---	1/2
3	20	263-0001-17-A	WASHER AN960-416	STEEL		1/4
4	2	314-0005-15-A	BEARPAW - ICE BLADE ASSEMBLY	STEEL		
5	2	314-0012-01-A	BEARPAW - FILLER BLOCK 1/4	UHMW		1/4
6	2	314-0006-15-B	BEARPAW - U SHAPED CLIP	STEEL		
7	6	314-0007-15-B	BEARPAW - SLOTTED CLIP SUPPORT	STEEL		
8	2	261-0003-17-A	BOLT AN4-16A	STEEL		1/4
9	10	262-0001-17-A	NUT MS20-365-428	STEEL		1/4
10	4	261-0002-17-A	BOLT AN4-15A	STEEL		1/4
11	2	314-0014-01-A	BEARPAW - FILLER BLOCK 3/32	UHMW		3/32
12	2	314-0015-01-A	BEARPAW - FILLER BLOCK 1/8	UHMW		1/8
13	3	314-0016-05-A	BEARPAW - SHRINK 1X5	RUBBER		
15	1	314-0023-15-A	BEARPAW - U SHAPED CLIP REAR	STEEL		0.105



ISO VIEW
SCALE 1 / 4

RÉFÉRENCE SEULEMENT

2023 07 12
Cartouches approuvées/ab

CARTOUCHE

REVISION				
REV	DESCRIPTION	REVISED BY	APPROVED	DATE
A	ISSUE FOR PRODUCTION			
B	MODIFY BOLT MODEL AND ADD FILLER BLOCK			
C	MODIFY BOLT MODEL AND ADD FILLER BLOCK AND SHRINK			
D	ADDITION OF STREAMLINE PAD CONFIGURATION			
E	ADDITION OF REAR U SHAPED CLIP IN THE STREAMLINE PAD CONFIGURATION			

NEXT ASSY: NEXT ASSY

THIS DRAWING IS PROPERTY OF ***HELITOWCART*** AND MAY NOT BE COPIED OR DISTRIBUTED WITHOUT AUTHORIZATION.

Helitowcart (Vanair inc)
St-Nicolas, Levis, Qc, Canada
www.helitowcart.com

STAMP

PROTOTYPE ONLY

MODEL: MODEL_LINE_1 MODEL_LINE_2

IF NOT SPECIFIED GENERAL TOLERANCE
1/X ± 1/32
X.XX ± 0.010"
X.XXX ± 0.005"
ANG. ± 1°

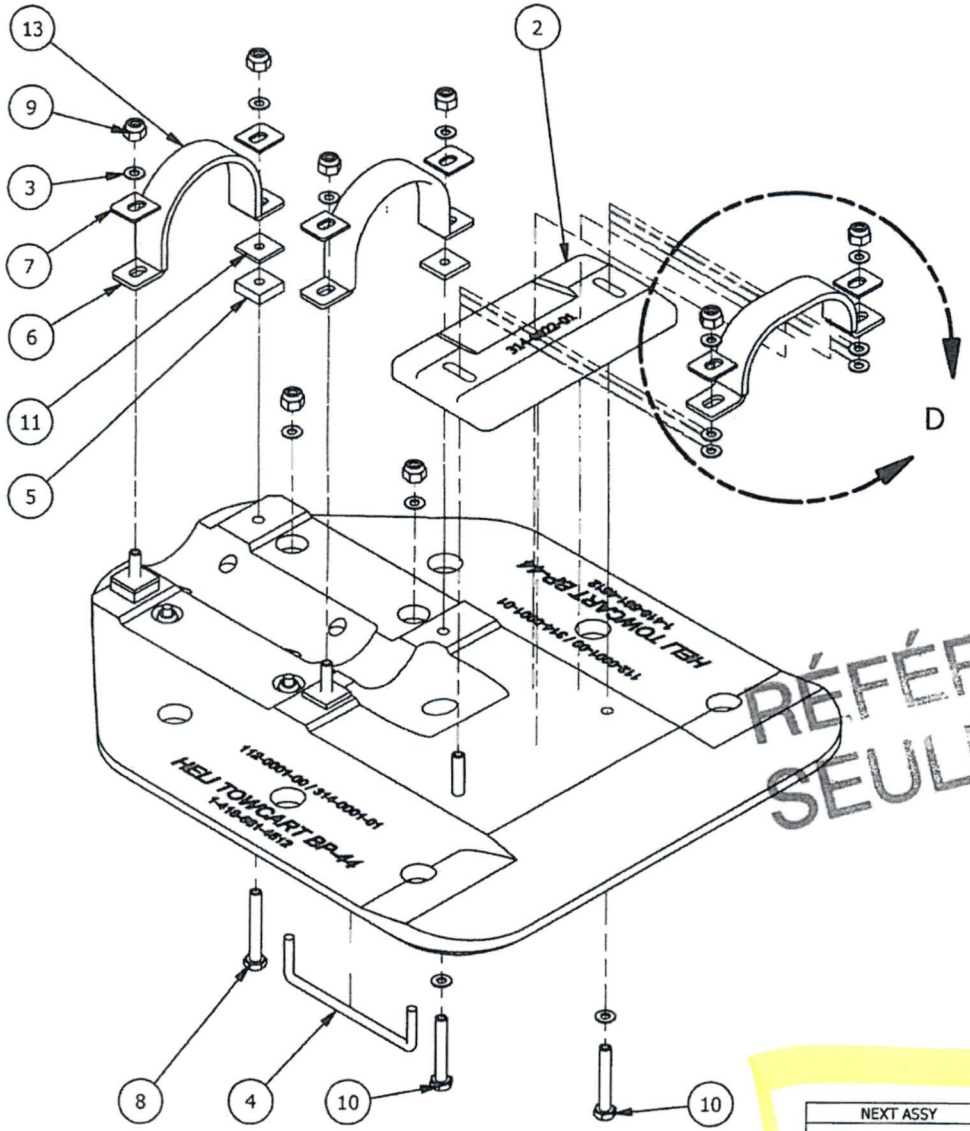
DRAFTED BY: DRAWN BY — DATE:
DESIGNED BY: DESIGNED BY — DATE:
STRESSED BY: STRESSED BY — DATE: YYYY/MM/DD — WEIGHT: N/A
CHECKED BY: CHECKED — DATE: — UNITS: INCH
APPROVED TCCA BY: TCCA — DATE: — SIZE: A
STATION: N/A — WATERLINE: N/A — BUTT LINE: N/A

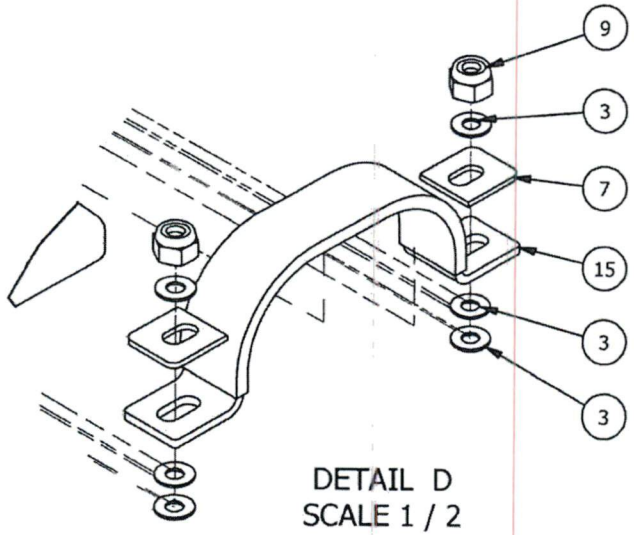
DEFINITION: TITRE / TITRE2

DRAWING NUMBER: Drawing_HTC — REV: E

SCALE: N/A

SHEET: 1 OF 2





DETAIL D
SCALE 1 / 2

RÉFÉRENCE SEULEMENT

NEXT ASSY	THIS DRAWING IS PROPERTY OF ***HELITOWCART*** AND MAY NOT BE COPIED OR DISTRIBUTED WITHOUT AUTHORIZATION.				**Helitowcart** (Vanair inc) St-Nicolas, Levis, Qc, Canada www.helitowcart.com	
NEXT ASSY						
MODEL	DRAFTED BY: DRAWN BY		DATE:			
STAMP / MODEL_LINE_1 MODEL_LINE_2	DESIGNED BY: DESIGNED BY		DATE:		DEFINITION: TITRE TITRE2	
IF NOT SPECIFIED GENERAL TOLERANCE	STRESSED BY: STRESSED BY		DATE: YYYY/MM/DD	WEIGHT: N/A		
PROTOTYPE ONLY 1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	CHECKED BY: CHECKED		DATE:	UNITS: INCH	DRAWING NUMBER: Drawing_HTC	REV: E
	APPROVED TCCA BY: TCCA		DATE:	SIZE: A		
	STATION: N/A	WATERLINE: N/A	BUTT LINE: N/A		SCALE: N/A	SHEET: 2 OF 2

NOTES:

1.

REFERENCE ONLY

Sous de cartouche ou abrégé s'il y manque de places

Réduire Largeur?



	NEXT ASSY: NEXT ASSY	THIS DRAWING IS PROPERTY OF ***HELITOWCART*** AND MAY NOT BE COPIED OR DISTRIBUTED WITHOUT AUTHORIZATION.			**Helitowcart** (Vanair inc) St-Nicolas, Levis, Qc, Canada www.helitowcart.com
	MODEL: MODEL_LINE_1 MODEL_LINE_2	DRAFTED BY: DRAWN BY	DATE:		
STAMP		DESIGNED BY: DESIGNED BY	DATE:		DEFINITION: TITRE TITRE2
	IF NOT SPECIFIED GENERAL TOLERANCE	STRESSED BY: STRESSED BY	DATE: YYYY/MM/DD	WEIGHT: N/A	
PROTOTYPE ONLY	1/X ± 1/32 X.XX ± 0.010" X.XXX ± 0.005" ANG. ± 1°	CHECKED BY: CHECKED	DATE:	UNITS: INCH	DRAWING NUMBER: Drawing_HTC — REV: NC
	units: inch	APPROVED TCCA BY: TCCA	DATE:	SIZE: A	
		STATION: N/A — WATERLINE: N/A	BUTT LINE: N/A		SCALE: N/A — SHEET: 1 OF 1

R+D

CONTRAST

Aviatech
TECHNICAL SERVICES INC.

2595, rue St-Olivier
Trois-Rivières, Québec, G9A 4G1
Tel: 819-601-8049
Fax: 819-377-7928
E-Mail: info@ats-ast.com

Facture

Facture # 1135
Project # A2013016
Date : 2013/09/10

Description: Amendement STC SH06-24 et FAA STC SR02432NY pour ajout du Robinson R66

PO: nb-130702-01

Facturé à:
Vanair inc. (Helitowcart)
877A Alphonse-Desrochers
St-Nicolas, Qc
Canada G7A 5K6
A/S: Nathalie Barbeau

Item	DESCRIPTION	Hours/Qty	Rate/Hour	Amount
1	Mandat d'analyse et d'expertise technique au projet de pattes d'ours pour R66 (Hélicoptère Robinson 66) L'analyse doit permettre d'éliminer les incertitudes de sécurité et d'efficacité d'usge de Bearpaws sur ce type d'hélicoptère Des tests en vol doivent absolument faire partie de la démarche selon les exigences de Transport Cananda	1	$ 10 806,16	$ 10 806,16
			Sous-total	$ 10 806,16
			TPS / HST # 84151 1751 RT0001 @ 5%	$ 540,31
			TVQ # 1213578029TQ0001 @ 9.975%	$ 1 077,91
			Autre	N/A
			TOTAL	$ 12 424,38

Terme de paiement
Information pour Transfert Bancaire
Banque Nationale du Canada
5620, Boul. Jean XXIII, Trois-Rivières, QC, Canada, G8Z 4B1

Transit #:	*Banque #:*	*Compte #:*
00651	***006***	***00433-24***

Vanair Inc. (Helitowcart)									
Current	$ 12 424,38	30 days	$ -	60 days	$ -	90 days +		Total amount	$ 12 424,38

Prepared by *Marie-France Noël*
Comptabilité
Tél. : (819) 601-8049 Ext.: 206

Aviatech
TECHNICAL SERVICES Inc

2595, rue St-Olivier
Trois-Rivières, Québec, G9A 4G1
Tel: 819-601-8049
Fax: 819-377-7928
E-Mail: info@ats-ast.com

Facture

Facture # 1135
Project # A2013016
Date : 2013/09/10

Description: Amendement STC SH06-24 et FAA STC SR02432NY pour ajout du Robinson R66

PO: nb-130702-01

Facturé à:
Vanair inc. (Helitowcart)
877A Alphonse-Desrochers
St-Nicolas, Qc
Canada G7A 5K6
A/S: Nathalie Barbeau

Item	DESCRIPTION	Hours/Qty	Rate/Hour	Amount
1	Amendement des certificats (STC & FAA) pour ajout R66	1	$ 8 398,00	$ 8 398,00
2	Addenda au PO pour création des mises en plan dans un nouveau format	6,5	$ 90,00	$ 585,00
3	Frais de transport pour essai en vol à Québec (km)	246	$ 0,46	$ 113,16
4	Ajustements des rayons et hauteur des "U shaped clip"	7	$ 90,00	$ 630,00
5	Ajustements des tolérances pour faciliter la fabrication et l'inspection des différentes pièces	5	$ 90,00	$ 450,00
5	Ajustements de la quincaillerie pour l'assemblage final lors de l'installation	4	$ 90,00	$ 360,00
6	EO - Installation de toutes les versions de Berpaw BP44 sur le Robinson R66	3	$ 90,00	$ 270,00
			Sous-total	$ 10 806,16
			TPS / HST # 84151 1751 RT0001 @ 5%	$ 540,31
			TVQ # 1213578029TQ0001 @ 9,975%	$ 1 077,91
			Autre	N/A
			TOTAL	$ 12 424,38

Terme de paiement
Information pour Transfert Bancaire
Banque Nationale du Canada
5620, Boul. Jean XXIII, Trois-Rivières, QC, Canada, G8Z 4B1

Transit #:	*Banque #:*	*Compte #:*
00651	*006*	*00433-24*

Vanair inc. (Helitowcart)									
Current	$ 12 424,38	30 days	$ -	60 days	$ -	90 days +		Total amount	$ 12 424,38

Prepared by *Marie-France Noël*
Comptabilité
Tél. : (819) 601-8049 Ext.: 206

OK
DP
2013 09 18
Ch # 10129

HELI TOW CART *www.helitowcart.com*
By Vanair inc.

Purchase Order

Date: July 2nd, 2013

P.O. No: nb-130702-01a

Supplier:

Avitech
2595 rue St-Olivier
Trois-Rivières, Qc, G9A 4G1
info@ats-ast.com
t 819-601-8049
f 819-377-7928

Bill to:

Vanair inc. (Helitowcart)
877A Alphonse-Desrochers
St-Nicolas, Qc
Canada, G7A 5K6
tel: 418-561-4512
fx: 418-836-4575

Ship to:

Contact:
Cell:

Contact:
JF Lemire

Issued by: *Nathalie Barbeau*
Nathalie Barbeau,418-561-4512
info@helitowcart.com

Quantity	Description	Rev.	Due Date	Currency: C$ Unit Price	Amount
	Tel que discuté avec m. Mirko Zgela voici le mandat:				
1	Mandat d'analyse et d'expertise technique au projet de pattes d'ours pour R66 (Helicoptère Robinson 66)			$10,800.00	$10,800.00
	L'analyse doit permettre d'éliminer les incertitudes de sécurité et d'efficacité d'usage de Bearpaws sur ce type d'hélicoptère.				$0.00
	Des tests en vol doivent absolument faire partie de la démarche selon les exigences de Transport Canada				$0.00
					$0.00
				Subtotal	$10,800.00
				GST	
				PST	
				Shipping	
				Total	

Instructions:

Nathalie Barbeau

From: Nathalie Barbeau [nbarbeau@helitowcart.com]
Sent: July-11-13 5:03 PM
To: 'Jean-Francois Lemire'
Cc: 'nbarbeau@helitowcart.com'
Subject: Bearpaw R4466
Attachments: Scan_1st_draft_drawings_modifs_nb_2013_07_11.pdf

JF, 595$

J'approve ton 6.5 heures @ $90/h en addenda à notre PO pour réviser/traduire les dessins ci-joints en ***.dwg*** faits selon vos paramètres. (la plupart sont très très simples à réaliser).
Trouve ci-joint la pile complete avec mes annotations.
Je dois contacter mes fournisseurs de pads et U clips pour obtenir leurs notes et modifs additionnelles qu'ils aimeraient peut-être avoir pour tout faire en meme temps et bonifier nos recettes de fabrication.
Je te reviens demain vendredi avec leurs propres détails à ajouter ou réviser aux dessins.

Nathalie Barbeau
VP Commercial Affairs

Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis
Quebec, Canada, G7A 5K6
T: +1.418.561.4512
F: +1.418.836.4575
nbarbeau@helitowcart.com
info@helitowcart.com
www.helitowcart.com

From: Jean-Francois Lemire [mailto:jeanfrancoisl@ats-ast.com]
Sent: July-11-13 12:05 PM
To: nbarbeau@helitowcart.com
Cc: Renaud Berthelot-Richer
Subject: A2013-16 - Bearpaw R66

Nathalie,

Nous avons vérifié les dessins à modifier et le niveau de travail se situe à environ 6.5 heures (90$/hr), car les dessins 3D que nous ne gérons pas ont été dessiné uniquement de façon esthétique pour l'assemblage général.

Nous vous proposons d'uniformiser les cartouches (8.5 X 11) de toutes les mise en plan du Bearpaw BP-44 et d'ajuster les 3D pour correspondre aux mise en plan que nous allons refaire.

Vous trouverez en pièce jointe 3 dessins avec des cartouche différents ainsi que le cartouche d'Aviatech qui sera adapter pour intégrer votre logo et correspondre à vos besoins.

Nous croyons que cet ajustement permettra à Helitowcart d'avoir une image plus uniforme envers ses sous-traitants et permettre un plus grand contrôle de l'ingénierie de son produit.

Nous attendons de vos nouvelles à ce sujet.

Bonne journée.

Jean-François Lemire, ing.
DIRECTEUR D'INGÉNIERIE
ENGINEERING DIRECTOR
T: 819.601.8049 #203
jeanfrancoisl@ats-ast.com

Aviatech
SERVICES TECHNIQUES INC.
TECHNICAL SERVICES INC.

2595 St-Olivier
Trois-Rivières, Qc, Canada
G9A 4G1

F: 819.377.7928
www.ats-ast.com

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Studies have shown trees live longer when they're not cut down.
Avant d'imprimer, pensez à l'environnement.

HELI TOW CART

www.helitowcart.com
By Vanair inc.

Purchase Order

Date: July 2nd, 2013

P.O. No: nb-130702-01

Supplier:

Avitech
2595 rue St-Olivier
Trois-Rivières, Qc, G9A 4G1
info@ats-ast.com
t 819-601-8049
f 819-377-7928

Bill to:

Vanair inc. (Helitowcart)
877A Alphonse-Desrochers
St-Nicolas, Qc
Canada, G7A 5K6
tel: 418-561-4512
fx: 418-836-4575

Ship to:

Contact:
Cell:

Contact:
JF Lemire

Issued by: *Nathalie Barbeau*
Nathalie Barbeau,418-561-4512
info@helitowcart.com

Quantity	Description	Rev.	Due Date	Currency: C$ Unit Price	Amount
	Ref soumission: X2013-37 Rev A ---- Amendement STC SH06-24 et FAA STC SR02432NYpour ajout BP66				
1	Révision et maj document de certif du R44 pour intégrer le R66	na		$3,973.00	$3,973.00
1	Ajustement de pièce Filler Block pour ajuster angle d'épousement du skid			$977.00	$977.00
1	Prep & Approb Plan Vol, Test en Vol, Rapport d'essai - à Trois-Rivières			$2,008.00	$2,008.00
1	Transfer document à TC et suivi d'amendement de STC Can et US , et Émisssion des certif et doc			$1,440.00	$1,440.00

Instructions:

Subtotal	$8,398.00
GST	
PST	
Shipping	
Total	

Aviatech
SERVICES TECHNIQUES inc.

Le 26 juin 2013
Dossier: X2013-37 Rev A

Mme. Nathalie Barbeau
Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis, QC
G7A 5K6

Sujet: Amendement du STC SH06-24 et du FAA STC SR02432NY pour inclure l'hélicoptère Robinson R66.

Mme. Barbeau,

Tel que demandé, nous avons préparé un estimé de coût pour l'amendement de votre STC SH06-24 et pour l'amendement de votre FAA STC SR02432NY. Le présent estimé comporte les éléments suivants:

Description	Coût
a. Révision et mise des documents de certification du R44 (I & II) pour intégrer le R66;	3 973$
b. Ajustement de l'angle de la pièce "Bearpaw - Filler Block Rear" pour un assurer un meilleur contact entre la pièce et le patin de l'hélicoptère.;	977$
c. Préparation et approbation d'un plan de vol, test en vol pour validation et rapport d'essai; (Note: Les tests en vol s'effectueront à l'aéroport de Trois-Rivières et devront être effectués par un pilote ayant une licence commerciale.)	2 008$
d. Transfert des documents et suivi auprès de Transport Canada de l'amendement des 2 certificats; et e. Émission des certificats et des documents nécessaires.	1 440$
TOTAL:	**8 398$**

Horaire et Paiements

Le montant total de cette proposition est de 8 398$ et pourra être complétée dans un délai de 2-3 semaines sous réception d'un PO et d'un dépôt de 50%. Ce délai n'inclut pas le temps de traitement du dossier à Transport Canada, mais nous voulons vous rassurerez que nous effectuons des suivis plus que nécessaire. Il est a noter que la demande de certification FAA doit être effectuée par Transport Canada et peut être effectuée à la suite de l'émission du certificat canadien.

Tous les frais reliés à la location de l'hélicoptère R66 sont la responsabilité d'Helitowcart. Il en est de même pour la composante fabrication et installation. Pour toutes questions, n'hésitez pas à communiquer avec moi au 819-601-8049 #203 o# par courriel à jeanfrancoisl@ats-ast.com.

Sincèrement,

Jean-François Lemire, ing.
Directeur d'Ingénierie

Aviatech Services Techniques Inc.
2595, rue St-Olivier
Trois-Rivières, Québec, G9A 4G1
Tel: (819) 601-8049 Fax: (819) 377-7928
Courriel: info@ats-ast.com
Site Internet: www.ats-ast.com

Nathalie Barbeau

From: Jean-Francois Lemire [jeanfrancoisl@ats-ast.com]
Sent: June-26-13 4:16 PM
To: nbarbeau@helitowcart.com
Subject: X2013-37 Rev A - Integration du R66 dans la certification des Bearpaw
Attachments: X2013-37 Rev A - Estimé (JFL - 2013-06-26).pdf

Categories: Cat 1 - Needs important Action

Mme. Barbeau,

Vous trouverez en pièce jointe une soumission révision A pour l'amendement de votre STC SH06-24 et pour l'amendement de votre FAA STC SR02432NY dans le but d'intégrer le Robinson R66. Cette révison a été créée suite à notre discussion de vendredi dernier (2013-06-21).

Bien à vous.

Jean-François Lemire, ing.
DIRECTEUR D'INGÉNIERIE
ENGINEERING DIRECTOR
T: 819.601.8049 #203
jeanfrancoisl@ats-ast.com

Aviatech
SERVICES TECHNIQUES INC
TECHNICAL SERVICES INC

2595 St-Olivier
Trois-Rivières, Qc, Canada
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Trees have shade. Trees live longer when they're not cut down.
Avant d'imprimer, pensez à l'environnement.

Aviatech
SERVICES TECHNIQUES inc

Le 20 juin 2013
Dossier: X2013-37

Mme. Nathalie Barbeau
Helitowcart (Vanair inc.)
877a Alphonse-Desrochers
St-Nicolas, Levis, QC
G7A 5K6

Sujet: Amendement du STC SH06-24 et du FAA STC SR02432NY pour inclure l'hélicoptère Robinson R66.

Mme. Barbeau,

Tel que demandé, nous avons préparé un estimé de coût pour l'amendement de votre STC SH06-24 et pour l'amendement de votre FAA STC SR02432NY. Le présent estimé comporte les éléments suivants:

Description	Coût
a. Révision et mise des documents de certification du R44 (I & II) pour intégrer le R66;	3 973$
b. Création de dessins d'assemblage général pour le R44 (I & II) et le R66 pour assurer une gestion de configuration indépendante; c. Modification du design des pièces entrant en contact avec le patin de l'hélicoptère pour assurer un contact plus adéquat lors de l'utilisation;	1 302$
d. Préparation et approbation d'un plan de vol, test en vol pour validation et rapport d'essai; à 2013	2 629$
e. Transfert des documents et suivi auprès de Transport Canada de l'amendement des 2 certificats; et f. Émission des certificats et des documents nécessaires.	1 440$
TOTAL:	**9 344$**

Si on va à T-R

Horaire et Paiements

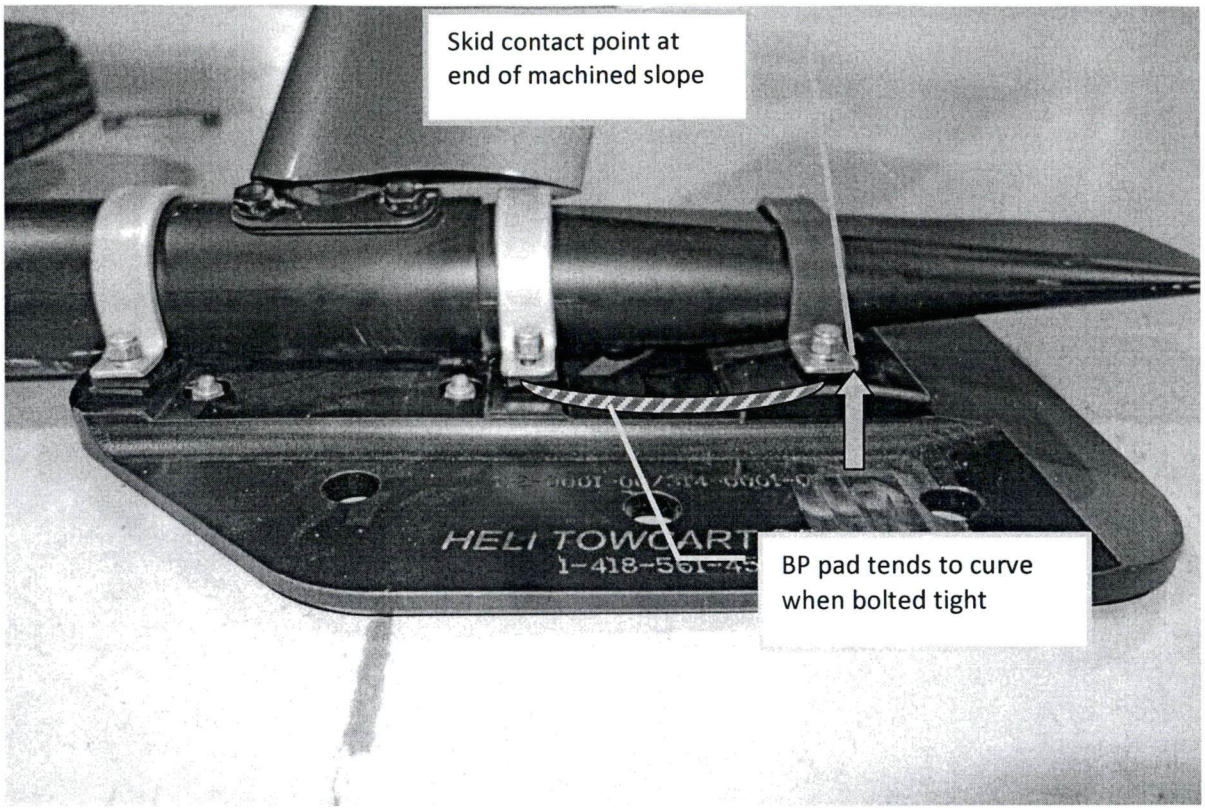
Le montant total de cette proposition est de 9 344$ et pourra être complétée dans un délai de 2-3 semaines sous réception d'un PO et d'un dépôt de 50%. Ce délai n'inclut pas le temps de traitement du dossier à Transport Canada, mais nous voulons vous rassurerez que nous effectuons des suivis plus que nécessaire. Il est a noter que la demande de certification FAA doit être effectuée par Transport Canada et peut être effectuée à la suite de l'émission du certificat canadien.

Tous les frais reliés à la location de l'hélicoptère R66 sont la responsabilité d'Helitowcart. Il en est de même pour la composante fabrication et installation. Pour toutes questions, n'hésitez pas à communiquer avec moi au 819-601-8049 #203 ou par courriel à jeanfrancoisl@ats-ast.com.

Sincèrement,

Jean-François Lemire, ing.
Directeur d'Ingénierie

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Tel: (819) 601-8049 Fax: (819) 377-7928
Courriel: info@ats-ast.com
Site Internet: www.ats-ast.com


Skid contact point at
end of machined slope
BP pad tends to curve
when bolted tight

